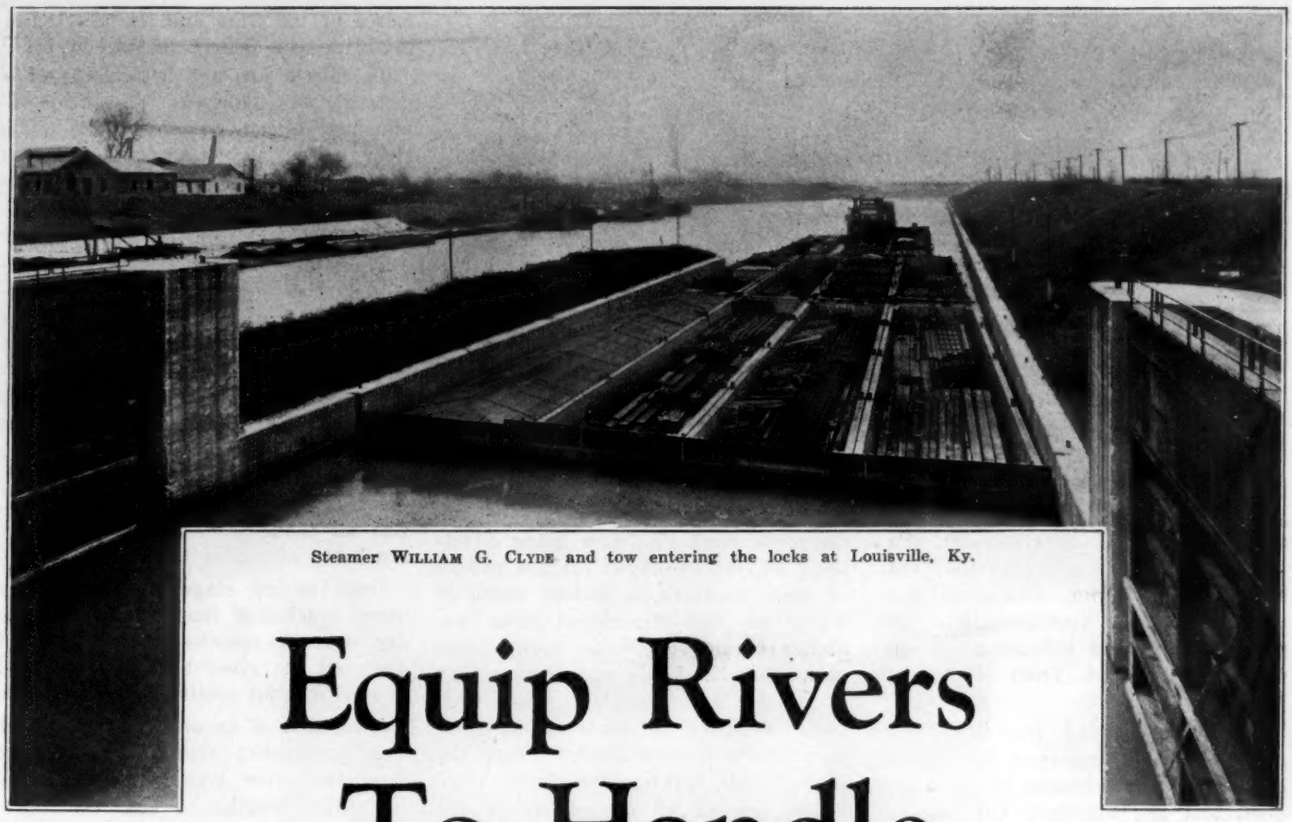


Steamer WILLIAM G. CLYDE and tow entering the locks at Louisville, Ky.

Equip Rivers To Handle Steel

STEEL thrives on steel; no better example of this can be found than in extensive improvements being made along some of our principal rivers, requiring steel, to provide for shipments of steel.

STEEL barges, steel dock equipment, steel for reinforcing purposes, all these have been brought into greater use through the new era of steel shipments by river. This article deals with the subject in an all-inclusive way.

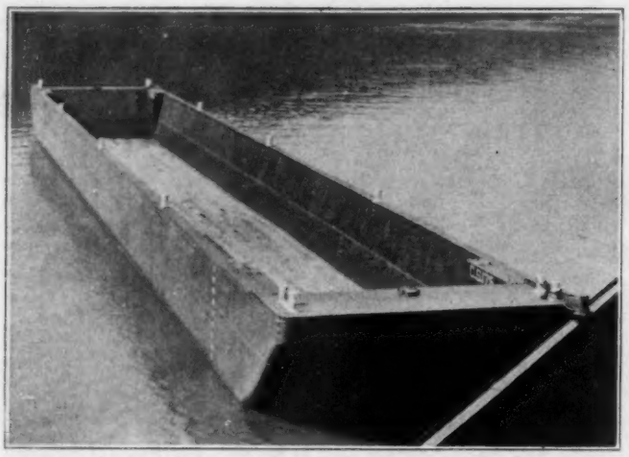
By J. F. Froggett

DISPATCH down the Ohio river early in March of two great fleets of steel barges carrying thousands of tons of products from Pittsburgh steel mills, and recent awards of millions of dollars worth of contracts for new Ohio river steamboat and barge equipment, again have focused the attention of American industry and transportation upon this historic stream.

The canalization of the Ohio river by 1929 will have thrown open to commerce a 9-foot stage of navigable water for 1000 miles, or from Pittsburgh to Cairo, Ill. Last October the last three locks and dams on the 600-mile stretch from Pittsburgh to Louisville, Ky. were dedicated, leaving only half a dozen to be completed on the remaining 400 miles toward Cairo. Over $67,000,000 have been spent by congress upon this Ohio river canalization project and when completed it will have cost $85,000,000.

Anticipating the quick completion of the Ohio's improvement and aggressively seeking entrance through economic transportation into the rich oilfields and other consuming points in the Southwest through Memphis and St. Louis, leading steelmakers such as the Jones & Laughlin Steel Corp., the Carnegie Steel Co., the Pittsburgh Steel Co., and the Wheeling Steel Corp., as far back as four years ago, began shipping down the Ohio in open steel barges guided by towboats. All of these this year are building additional equipment to expand this river service while such others as the Weirton Steel Co., Weirton, W. Va., Belfont Steel & Wire Co., Ironton, O., and the Pittsburgh Plate Glass Co., Pittsburgh, Pa., are executing contracts which will provide them with like equipment before the end of the summer.

Individual carriers such as the W. C. Kelly Barge Line, Charleston, W. Va., are placing in service this spring the GEORGE T. PRICE, twin screw diesel engine steel towboat, new idea in river towboats, and nine covered steel barges of 500 tons capacity each which will be open to use



Typical river barge, with scow bow and stern, built entirely of steel. These barges are adapted to carrying semi-finished and products, coal and other bulk freight. Some of the barges are covered

by the general shipping public. This company is building standarized terminals at Glassport, Pa., Charleston, W. Va., Evansville, Ind., and Memphis, Tenn., which will permit economical transportation and quick loading and unloading of miscellaneous freight from Pittsburgh South.

Coal mines along the Ohio river for years had employed its shallow channel in the shipment of their product, and the Standard Oil Co. had been using it for several years for transportation of oil in barges. The coal shippers along the Monongahila and Kanawha rivers had floated much coal shippers along the Monongahela seasons. But now giant strides are being made by important transportation agencies toward taking advantage on greatly enlarged scales of the additional facilities being afforded by the deepened river channel. Beside the routes to Louisville, Memphis and New Orleans, others such as the Upper Mississippi River Barge Co., plan in connection with the Inland Waterways Corp., a line of barges between St. Louis and Minneapolis-St. Paul; while at least one other is planned up the Missouri river to Kansas City.

The Baton Rouge terminal of the Carnegie Steel Co., now being developed will be employed for the export of steel products, a 30-foot stage of water on the Mississippi river enabling ocean vessels to dock alongside. The St. Louis and Kansas City terminals will enable upper Ohio river shippers to continue distribution to the farther West through the 29 railroads which enter these cities.

The bureau of navigation of the department of commerce reports that as of March 1, this year, 227 steel vessels of 235,464 gross tons were building or under construction in all the shipyards of the country. Out of this total, 140 vessels including barges, towboats, oil barges, etc., of 56,586 gross tons were being built for this river traffic solely.

With the lock and dam system now only partly completed, the Ohio river carried in 1925 in the Pittsburgh district 15,737,015 tons of various commodities, against 10,866,638 tons in 1924. This increase of nearly 50 per cent in one year is attributed to the growing shipments in coal, coke, steel, oil and gasoline. The aggregate commerce of the Ohio and its tributaries in 1924 was nearly 38,000,000 tons.

These are just the beginnings of a network of industrial power developments aimed to cover the Ohio river valley and its tributaries such as the Tennessee, Cumberland, Kanawha, Green, Kentucky, Youghiogheny, Monongahela and others.

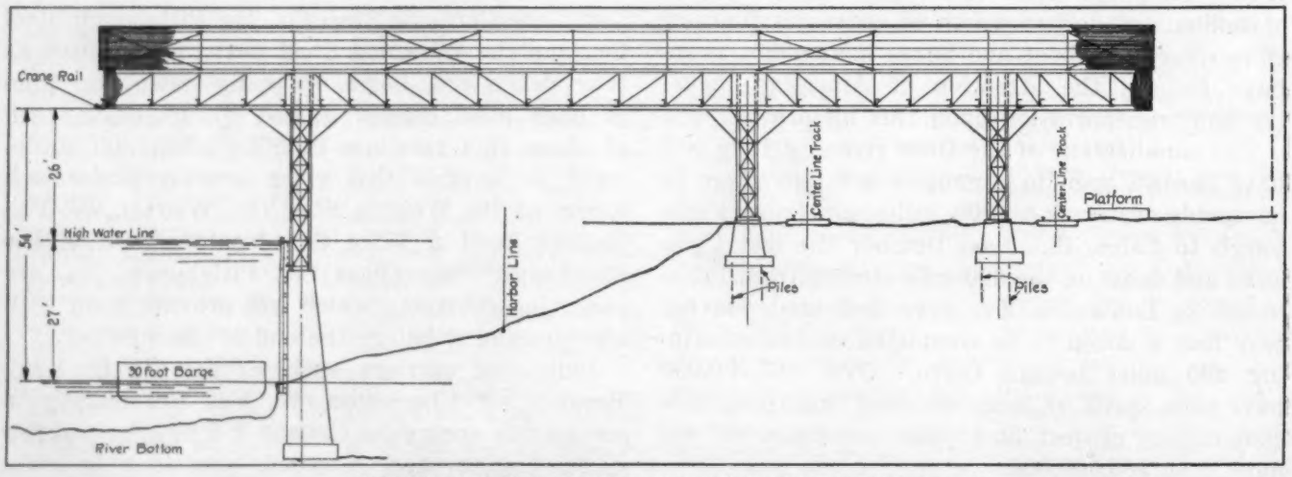
Three outstanding obstacles originally stood in the way of the development and final use of the Ohio river as a national avenue for cheap transportation. As such an artery of future commerce, the youthful George Washington visualized it in 1753 when first he stood on the hills amid the wilderness where now flourishes the great steel and coal city of Pittsburgh. But all these three obstructions now are being erased at the same time:

One, the low stage of water in the upper reaches of the Ohio river in the dry summer months when one could walk on the river bottom from pool to pool without gettings his shoes wet.

Two, lack of an adequate vessel for bulk commodity transportation when once the river was made navigable its entire length.

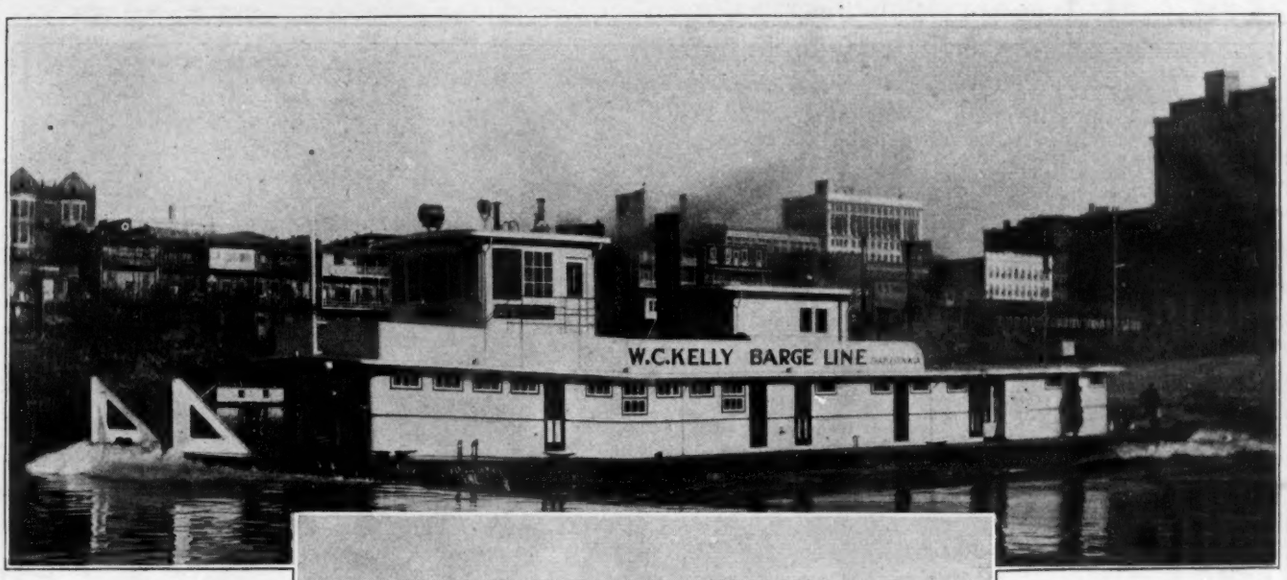
Three, lack of suitable terminals to attach the river to the criss-cross of important railroads and automobile truck roadways that cross the Ohio every few miles of its entire length.

Forty years ago a determined group of far-sighted business men of Cincinnati, Louisville, Pittsburgh and Evansville, Ind., brought sufficient pressure upon congress to obtain a small appropriation for improving the Ohio river. They formed the Ohio Valley Improvement association which still is driving the river project forward. Colonel Merrill built the Davis Island dam at Pittsburgh, using the Chanoine wicket as a dam, this idea first having been used in France by



INSTALLING STEEL LOADING AND UNLOADING EQUIPMENT

This illustrates a section of a well-designed installation on the Ohio river. One of the neglected features of river transportation has been loading and unloading equipment, but the modern tendency is to improve facilities so that boats can be loaded or unloaded by means of cranes, at any depth of water



The GEORGE T. PRICE, *upper photo, twin screw diesel engine steel towboat, placed in service on the Ohio river this spring*

The 240-horsepower twin screw towboat KING'S LANDING, *in the service of the Nashville Bridge Co.*

its inventor where it was studied by Colonel Merrill and Colonel Craighill, of the U. S. engineering corps. But after the Davis Island dam had been completed, twenty years were allowed to pass before anything further was done. Then the government decided to build five more dams under a project which called for a 6-foot stage of water in the Ohio. Major W. L. Sibert, now building the great Mobile dock system for the state of Alabama, then maneuvered the congressional project until finally as an extension of the Pittsburgh harbor to Beaver, Pa., he obtained permission to build these dams so as to insure a 9-foot stage of water. Thus the entire river project was saved from being damned by a 6-foot stage instead of the present 9-foot draft. A total of 53 locks and dams will have been built between Pittsburgh and Cairo, so that a steamer leaving the latter city will have been lifted 426 feet by the time it reaches Pittsburgh.

Selection of the most suitable and economic unit for this river transportation came about in a cut-and-fit method, finally by reversion to a glorified steel or wood type of the pioneer river flat boat.

Reversion to the oldtime flatboat type of carrier came about naturally. Its shallow draft but huge carrying capacity was adapted to the vagaries of Ohio navigation. For its propulsion and guidance was invented the towboat with its waterwheel at the stern and snub bow with which it nosed the fleet of heavy barges up or down the river. Typical modern towboats with which fleets of 10 to 20 barges, each 150 to 175 feet long and carrying 500 to 1000 tons are guided down and up the Ohio river are shown herewith. Newest to be launched and made ready for this spring's trade is the GEORGE T. PRICE, of the W. C. Kelly Barge Line, Charleston, W. Va., built and launched Oct. 1, 1925, at the yards at Charleston, W. Va., by the Chas. Ward Engineering Works. Its length overall is 126 feet, molded depth 6 feet, molded breadth 26 feet, draft 5 feet, displacement loaded 330 tons, bunker fuel capacity 52 tons and speed 10½ statute miles per hour. It is engined with two 360 horsepower full diesel engines. Two features are embodied in the construction of the PRICE, one including a tunnel built into the stern which houses twin screws 5 feet in diameter which does not interfere with the draft of the vessel; and the patented parallel rudders which provide absolute control of both vessel and towing barges. This towboat is designed for handling six barges, representing a total displacement including the towboat of 3875 tons at 6¼ miles per hour in still water with the barges arranged two abreast.

The Ward Engineering Works is building nine of these barges, each 150 feet long, 8 feet 6 inches deep and 26 feet wide. These are covered barges, designed for carrying miscellaneous freight in protection from the weather. The three-part coverings are hatch-covers, standardized with the terminal unloading equipment, each having clear unloading space of 31 feet 4 inches.

The third step toward the improvement of the Ohio is by means of adequate, cheaply and quickly operated terminals. The inefficient and costly method of loading and unloading by manpower over a gangplank run out to the mudbank of the old days, has been replaced by a series of terminals well equipped with conveying machinery. These include concrete abutments and aprons equipped with electric cranes, or slat-belts, or steel belts of clamshells.

Millions of tons of coal are handled

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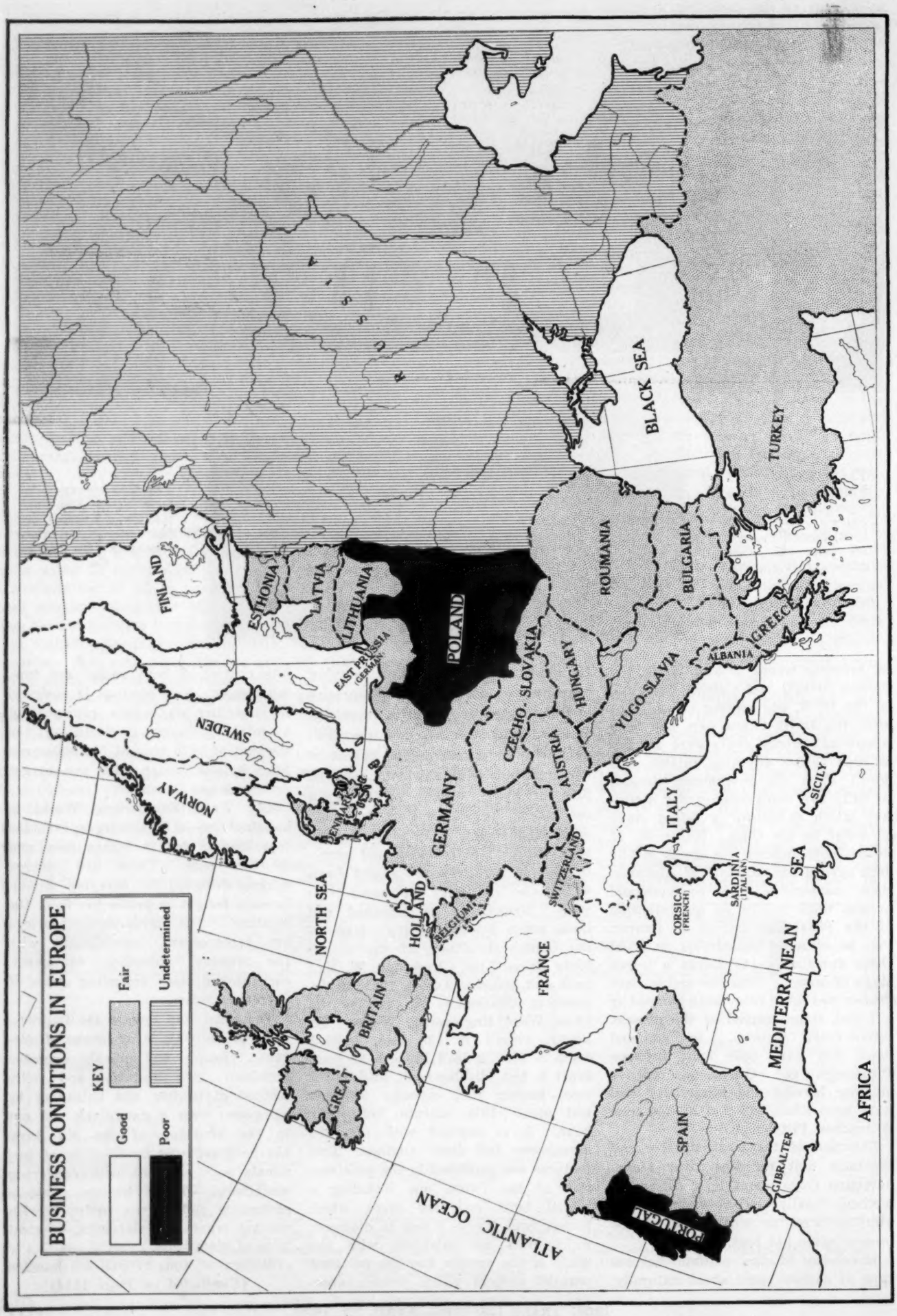
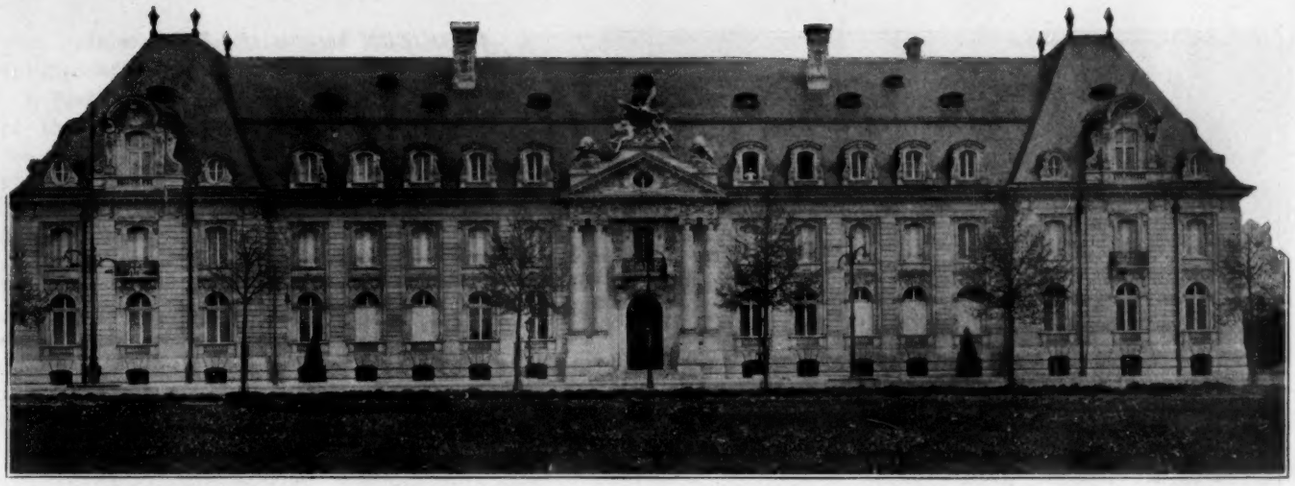

BUSINESS CONDITIONS IN EUROPE
KEY
Good
Fair
Poor
Undetermined
U. S. S. R.
BLACK SEA
TURKEY
FINLAND
ESTHONIA
LATVIA
LITHUANIA
POLAND
ROUMANIA
BULGARIA
GREECE
ALBANIA
EAST PRUSSIA (GERMAN)
SWEDEN
NORWAY
DENMARK
GERMANY
CZECHO-SLOVAKIA
HUNGARY
YUGO-SLAVIA
AUSTRIA
SWITZERLAND
ITALY
SICILY
SARDINIA (ITALIAN)
CORSICA (FRENCH)
NORTH SEA
HOLLAND
BELGIUM
FRANCE
BRITAIN
GREAT
SPAIN
PORTUGAL
GIBRALTER
MEDITERRANEAN SEA
AFRICA
ATLANTIC OCEAN



The headquarters of A. R. B. E. D. and Columeta in Luxemburg resembles a chateau. A. R. B. E. D. has absorbed the Metallurgique des Terres-Rouges. All export business is handled by Columeta

Europe's Steel Interests Unite

Syndicates and Trusts Springing Up—International Rail Association Established —Germany Now Anxious For General Production Control—Britain Waiting—Plans and Difficulties Reviewed

By Vincent Delport

European Manager, Iron Trade Review

DREAMS of a united Europe often have been cherished in the past three years, only to be dispelled by subsequent events. In the iron and steel industries a community of interests between the larger producing nations is likely to become a reality in the comparatively near future. Since 1924 attempts have been made more or less continuously to bring about an international agreement covering steel production and the allocation of export markets, and at last one important step has just been made with the organization of the international rail syndicate known as the Irma, or International Rail Makers' association. The desire for a more extensive co-operation is spreading, and Germany is the land where the idea has been nursed with the greatest persistency.

Germany for some months has been suffering from shortage of liquid money. Her industrial activities are severely curtailed and production costs have been rising while increasing unemployment is taxing the people. As a result, the country has been unable to compete in world markets at remunerative prices and exports have been low. The depreciation of the franc is detrimental to German business, although since the beginning of the year German export business has again improved. It is the opinion of German industrial leaders that the more immediate remedy for present troubles is to be found in efficient working of the heavy industries, with the help of American capital, while at a later date international agreements will be the only means of ending cut-throat competition.

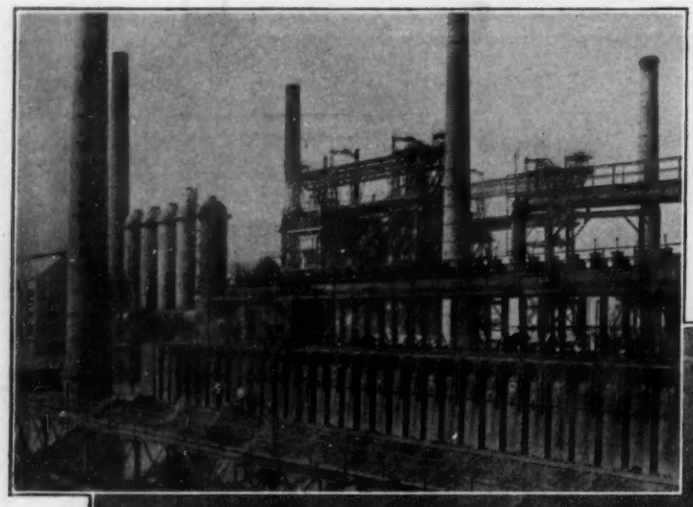
These impressions were confirmed during a short trip made on the Continent by the writer to study conditions, more particularly in the iron and steel industries, in Belgium, Luxemburg, Germany, and France, as compared with those in Great Britain. A survey of these conditions will help throw light on the present trend of international negotiations.

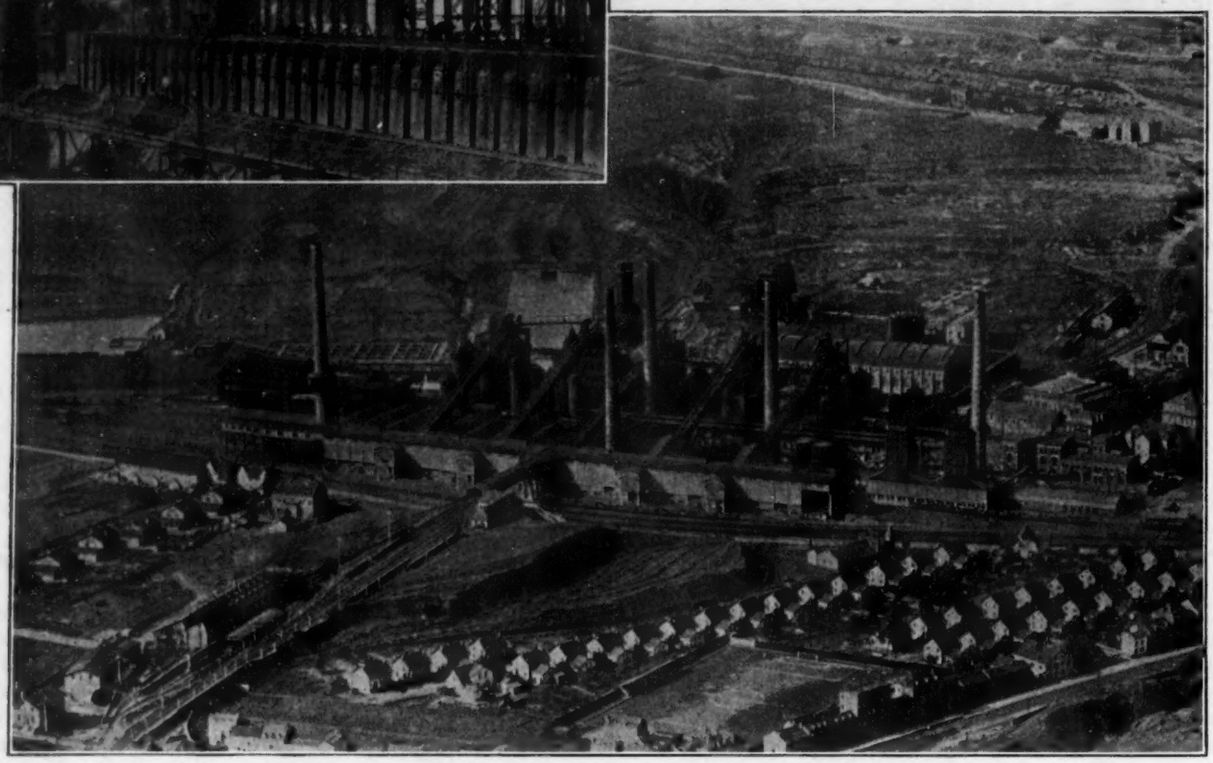
Undoubtedly the most anxious desire for control of steel production in Europe, and for agreements governing export business will be found among the German captains of industry.

In view of their present money difficulties they would immediately derive the greatest benefit from such understandings. A gradual restriction of credit and capital followed the stabilization of the mark. The

Business Conditions in Europe

Norway ..... Good	Holland ..... Good	Austria ..... Poor to fair
Sweden .....Fair to good	Great Britain	Hungary ..... Fair
Finland .....Fair to good	..... Poor to fair	Rumania .... Poor to fair
Esthonia ..... Fair	Belgium ..... Fair	Yugo-Slavia ..... Fair
Latvia ..... Fair	France ..... Fair to good	Albania ..... Fair
Lithuania ..... Fair	Spain ..... Poor to fair	Bulgaria .... Poor to fair
Poland ..... Poor	Portugal ..... Poor	Greece ..... Poor to fair
Germany ....Poor to fair	Italy ..... Good	Turkey ..... Poor to fair
Denmark ....Poor to fair	Switzerland ..... Fair	Russia .... Undetermined
	Czecho-Slovakia .... Fair	





A MODERN battery of coke ovens at Societe Metallurgique de Normandie in northwestern France. Below is the Esch plant in Germany which belongs to Metallurgique des Terres-Rouges. It includes five blast furnaces with a total capacity of 1200 tons daily, iron foundry, and a slag brick-making factory.

reduction of industrial activities which resulted is serious. Certain cases, such as the breakdown of the Stinnes concern, were spectacular. Krupps, in the period of prosperity, employed 116,000 people; the number was 65,-145 on June 30, 1925, and has since been further reduced to about 60,000. The same firm which was known the world over for its production of heavy material is now manufacturing such articles as typewriters to maintain its productive capacity.

The Thyssen concern, although still prosperous, has reduced considerably the number of workers. Phoenix, which has a valuable asset in its ore and coal mines, now employs about 40,000 workers instead of 50,000 in normal times. The total number of unemployed in Germany is close to 3,000,000, or more than twice as many as in Great Britain, with only a slightly larger population. Each of these men gets about 15 marks ($3.60) a week as a relief, also municipal help. In January this year over 2000 concerns went into the hands of the receivers, as against an average monthly figure of 800 in pre-war days. Taxation is heavy. According to a prominent industrialist in Dusseldorf the income tax on a yearly income of 100,000 marks ($23,800) amounts to 30 per cent. These few instances serve to show that Germany is passing through a difficult period.

These problems do not appear to have brought any sense of discouragement to the leaders. They know that the potential strength of the country is considerable. The German mark is maintaining its stability. Stocks of gold and foreign money at the Reichsbank Feb. 23, 1926 amounted to 1,780,500,000 gold marks ($425,-000,000), of which 1,361,400,000 marks ($325,000,000) were represented by gold, and 419,200,000 marks ($1,000,-000) by foreign currencies, dollars, pounds sterling, or Dutch florins. The German paper money is covered by 58.7 per cent of gold, or 76.8 per cent of combined gold and foreign currency, but the circulation is restricted. Money at sight can be obtained easily at about 6 per cent, but it is impossible to obtain long term loans; that is where the German industries meet their fate and why they are turning hungry eyes toward America's gold.

The first action taken by German producers to protect their business was the formation of the raw steel union which controls production of steel ingots and castings, at present limited to 65 per cent of the total capacity. Then followed a number of selling organizations controlling prices, and which are said to be working satisfactorily. They include the A-products syndicate which controls prices of semifinished products, beams and structural shapes, and railway material; the bar products syndicate; the plate syndicate and the band and hoop syndicate.

These syndicates together form a part of the Stahlwerks Verband, or union of steelworks, whose offices are in the Stahlhof in Dusseldorf.

Then there is the seamless tube syndicate and the wire syndicate. A lap-welded tube syndicate is also being completed. These organizations pre-

vent excessive competition and price cutting in the domestic market.

A further step to improve the state of the German heavy industries is the constitution of the Rhein-Westphalian trust which will be known as the Vereinigte Stahlwerks A. G. As has already been published, this concern will include the big firms of Phoenix, Thyssen, Rhein-Elbe Union, Reinstahl and Deutsch-Luxemburg. The capital will be about 800,000,000 marks ($190,000,000). Special legislation is being devised that the amount of taxation relating to the formation of such a company be reduced to a reasonable figure; prior to this, taxes would have amounted to 50,000,000 marks ($12,000,000). Special legislation is being the formation of the combine and offers help in this direction.

Reducing Costs and Overhead

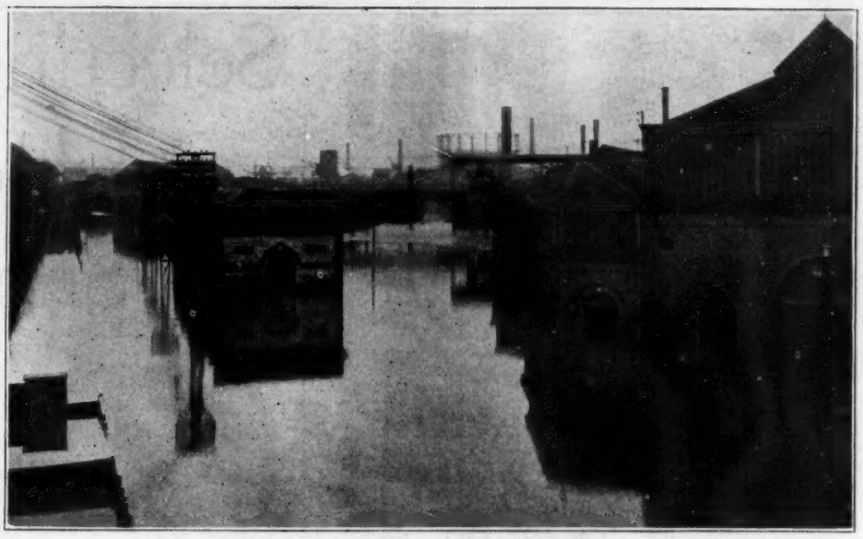
This organization is being formed with the object of reducing production costs and overhead expenses. Where six rail mills now are operating, the work will be concentrated into one; the total number of directors sitting on the boards of the separate firms will be reduced, and all the head offices will be in the Stumm building in Dusseldorf.

The Vereinigte Stahlwerks A. G. will be organized somewhat on the same lines as the United States Steel Corp.

Its capacity of steel production will be about 6,500,000 metric tons, or nearly half the total production in Germany. The firm of Krupp is not included in the combine but intends to co-operate with it. Part of the capital needed for the building of this vast enterprise is being raised in America under a form of loans, but the Germans are keeping absolute control of the works, which only serve as a guarantee for the payment of capital and interest.

Conditions in Belgium are more prosperous than in Germany. Iron and steel production tends to increase and 1925 would have been a record year had it not been for the strikes in the Charleroi district. At the Cockerill works at Liege-Seraing, the 1925 pig iron production was 25 per cent in excess of that of the preceding year. The labor trouble is now considered as being overcome and the future in that respect is viewed optimistically.

In Luxemburg the interesting event is the amalgamation of the two big concerns of Acieries Reunies de Burbach-Eich-Dudelange, known as the Arbed, and the Metallurgique des Terres-Rouges, the former absorbing the latter. For a long time past these two firms have been operating in close co-operation with each other. Columeta will continue as the export selling agency. All the departments are concentrated in one large and beautifully appointed building, which to all outward appearances resembles a big chateau.



THE COCKERILL PLANT AT SERAING, NEAR LIEGE, BELGIUM, FLOODED IN JANUARY, 1926. ALL OPERATIONS WERE SUSPENDED DURING SEVERAL DAYS AND MANY PATTERNS, DRAWINGS AND RECORDS WERE DESTROYED

The amalgamation is expected to reduce overhead expenses considerably. The concern's pig iron capacity amounts to 2,500,000 metric tons, which is in excess of the total production of Luxemburg in 1925, but it is to be noted that Arbed owns a plant in the Saar district at Burbach, while Terres-Rouges owns a plant in Germany at Rote-Erde near Aix-la-Chapelle and at Eschweiler. Columeta directly controls the export sales of the production of 40 blast furnaces, 23 basic bessemer converters, 17 open-hearth furnaces, three electric furnaces, 60 rolling mills, iron, steel and bronze foundries, forging shops, etc. A loan of $10,000,000 from Americans is contemplated with the object of further modernizing and extending the plants. It is assumed that this organization is the largest of its kind in Europe and will be second only in production, to the German steel trust.

The French iron and steel industries have been enjoying a prosperous period. The January pig iron output was the highest ever recorded, reaching 762,810 metric tons, or an annual rate of over 9,000,000 tons. Exports which were at their highest in December, 1925 have dropped since then, but export prices on the whole are considered satisfactory.

Reverting to international negotiations, the more sanguine elements in Germany are supporting a vast scheme of production control for each country, together with the allocation of markets, export quotas, and the fixing of export prices. It would, in fact, be an extension of the system now prevailing in Germany itself. The leaders of the industry in Germany are absolutely confident that such a course is bound to be taken in the future and they hope that later American interests will join.

French Less Ambitious

The representatives of the French iron and steel industries are disposed to conduct negotiations on less ambitious lines. For the time being they are pretty well satisfied with the present situation, but looking toward the future, they believe it would be advisable to come to a number of general agreements on the same lines as the rail agreement. An international syndicate could be formed for beams and structural shapes as a first step, then for merchant bars and small shapes, and so on, according to circumstances. The French do not believe that the stage of absolute control of each country's production will ever be reached.

Belgium and Luxemburg look upon the scheme with a certain amount of interest, but in view of their favored position as exporting countries they are in no hurry to see the plan mature in the near future. However, they are not antagonistic. Leading steelmakers in both countries believe that if the plan evolves it will reach the stage of general production control, in which case a quota can be fairly well established since the capacity of production of each country is sufficiently well known.

Selecting the Proper Steel for Making Shop Tools

By J. B. Mudge

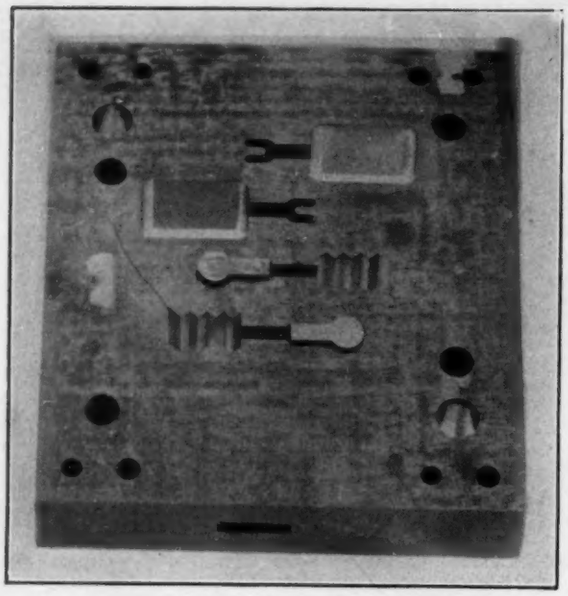


Fig. 1—Dies such as this warp and crack in hardening

AMONG makers and users of tool steel perhaps there is no question which invites more discussion and less general agreement than, "What is the best steel for making tools?" Whether there is any "best" steel for all jobs is doubtful, but the nearest approach to an all-purpose steel is high speed. So many factors are involved in a test for the determination of a best steel for any one job, that results are open to question.

Steel specifications which merely specify chemical analysis and tolerances and include stereotyped phrases which are in themselves meaningless are of little advantage to either user or supplier. But a specification which maintains reasonable manufacturing variations of analysis and tolerances, which gives a workable range of physicals; a specification that tells the manufacturer what is wanted and also tells what, in the opinion based on experience in your own shop, will best meet these requirements, should be a help to the manufacturer as it will enable him to visualize needs and grade his material accordingly.

In selecting raw material such as tool steels, deal with a reputable maker who has a well arranged mill; whose equipment, trained personnel and general business policy merits your confidence. In the manufacture of a quality product, it is imperative that the materials used be controlled closely. The use of a uniform base from a known source is good insurance when selecting tool steels. A second step is a means for identifying the types of tool steels, this involving purchase specifications and a classification scheme. In Fig. 2 is shown a tool steel classification chart such as is used by the Western Electric Co.

The next step is to set up in your plant the routine for raw material inspection. This raises the question as to how much or how little inspection is justified by the costs involved. It is costly to inspect steel; it also is costly to build tools from seamy or defective steel. For a small plant which cannot afford a technical staff, microscopic equipment, etc., the minimum inspection should be a visual examination; macroscopic hot acid etch test and a brinell test.

Simple Tests Are Applied

Visual examination requires considerable experience but should be used by all in the detection of seams, slivers, etc. This forms the major part of all mill inspections other than heat analysis. In some cases, this is supplemented by fracture of an annealed bar, and in some cases by a hardened bar. For the detection of manufacturing defects, the macroscopic hot acid etch test gives more information at less cost than any other. This test is not difficult to make and can be carried out by men having only slight experience in handling steels. It will disclose decarburization, seams, scabs, flakes, slag, slivers and inhomogeneity in general. A brinell test shows uniformity and degree of anneal.

All three of these tests are cheaply and quickly made and show up marked variations and defective conditions which are a positive basis for rejection of undesirable material. In larger companies, these tests are supplemented by the microscope, which probably is the best means for evaluating the conditions of the steel, that is, the process heat treatment, etc. No reference has been made to chemical composition in inspection. Other than touching the bar to a wheel and observing the spark to make certain that machine steel or high speed steel is not mixed with the carbon steel, the analysis inspection should be limited to a small percentage of the whole.

Assuming that a uniform high grade material is being received, the next item of importance is the hardening room. No amount of scientific heat treatment will produce good tools from defective steel, on the other hand, poor heat treatment will ruin the best of steel. The human element must be considered in this work. Regardless of how much modern scientific equipment a man has, he still can do poor work. Also regardless of how much experience a man has had and how excellent a treater he may be, he is a detriment to the organization if he resists improved equipment and methods.

Next to the human element, automatic temperature control in the hardening room is of principal importance, however, furnaces under automatic control still must be used with care and judgment. The arrangement of the hardening room as regards furnaces and quenching mediums should be determined by the work to be done. Production hardening is a quantity proposition and process specifications for any one type

From a paper presented at the joint meeting of the Chicago section of the American Society of Mechanical Engineers and the Western Society of Engineers at Chicago, March 24. The author is metallurgist, Hawthorne works, Western Electric Co., Chicago.

of work can be drawn closely but tool hardening being a quality or job lot proposition, no general rules can be given. We have found it necessary to install all types of furnaces and quenchants and to use practically all of the present day methods in our new hardening department, a layout of which is shown in Fig. 4.

Assuming now that we have a uniform high grade steel and a modern heat treating department, we shall consider the types of steels to be used in making various tools. In our plant we distringuish between tools and machine parts as follows: If the assembled detail touches the part being produced, it is classed as a tool, otherwise it is classed as a machine part. This is a convenient method of distinction for administrative purposes, but the physical properties necessary for proper performance of tools and machine parts are not so easily distinguishable.

In designing a crankshaft, column or ram, where static loads or alternating and vibratory stresses are involved, it is a relatively simple matter to compute these stresses, apply a safety factor and specify a steel to withstand the load. Testing equipment is available for measuring these stresses. Tools, however, including cutting tools, blanking tools, swaging tools, shearing tools, etc., are used in a condition which prohibits tests of this type. Test bars made up and treated to simulate blanking punch and die conditions give results that are practically valueless since steel

	Type of Tool	W. E. Co. Tool Steel No.	Hardness Rockwell C Scale
16.	**CUTTERS**		
16.1	Form milling hevi duty	1	60-65
16.2	Form milling ordinary	13 to 17 depends on size	60-65
16.3	Side milling hevi duty	1	60-65
16.4	Side milling ordinary	13 to 17 depends on size	60-65
16.5	Spiral milling hevi duty	1	60-65
16.6	Spiral milling ordinary	13 to 17 depends on size	60-65
16.7	Shell milling	1	60-65
16.8	End mills	1	60-65
16.9	Fish tail	1	60-65
16.10	Rubber milling	13 to 17 depends on size	60-65
16.11	Profiling	1	60-65
17.	**DIES**		
17.1	Button threading	15	58-62
17.2	Iron dust core	S.A.E. 3345	Brinell 477-555
17.3	Drawing		
17.31	General ordinary use	13 to 17	62-65
17.32	Sub.set box	23	62-67

FIG. 3—DRAWINGS ARE MARKED ACCORDING TO CLASSIFICATIONS SHOWN HERE, FACILITATING THE CHOICE OF STEELS IN THE SHOP

in the hardened condition has no elongation or reduction to speak of, and the proportional limit and ultimate strengths vary so as to be useless as standards of measurement.

Consequently, we are left with only the file and hardness testing machines as the two means for detecting hardness. Each of these instruments has its applications and we find use for all of them. In testing hardened tools where the minimum distortion or marring of surface is desired and rapid application of method is necessary, we prefer the Rockwell test and inspect our hardened tools 100 per cent. Tables for converting Rockwell hardness to brinell and scleroscope are available, but our experience has shown that these hold only for the type of material on which the results were worked out. When used on other types of material, large errors are frequent.

It should be remembered that all steels, both carbon and alloy, in the dead soft annealed condition give physical results that are practically similar depending upon the carbon content. In general, they run from 60,000 to

T.S. NO	TYPE	SPEC NO.	CHEMICAL COMPOSITION C MN P S SI NI CR W VA CO MO	PAINT COLOR	BRINELL NO AND'L'D	HEAT TREATMENT ANNEALING	NORMALIZING	SHEARING	HARDENING METHOD	QUENCHING T.& MED.	QUENCHING MED.	DRAW MED	APPLICATIONS IN W.E. CO.	REMARKS
11 10	DRILL ROD BEST QUALITY WATER HARD CARBON TO SUIT CAUC NOTE: REMARKS	G4024 ISSUE #3	MAX 1.17 .30 - - .10 - - - - - - MIN 1.05 .87 .025 .025 .25 - .10 - - - - - MAX 1.10 .20 - - .10 - - - - - - MIN 1.20 .30 .025 .025 .25 - .10 - - - -	NONE SPECIFIED	NONE SPECIFIED	1400°F TO 1450°F	1600°F TO 1650°F	1230°F 1325°F	OPEN FIRE	1400°F.	WATER OR BRINE	"	WATER HARDENING STEEL FOR DRILLS, TAPS, AND SIMILAR SMALL TOOLS COUNTER BORES, PILOT PINS, DOWEL PINS, PIN REAMERS, POINTS OF CALIPERS, PIECE PARTS, PERFORATORS, ETC.	(1) THE T.S NO WILL APPEAR ONLY ON THE PACKAGE (2) THE DRAWIN. TEMPERATURE WILL DEPEND ON THE USE OF TO WHICH THE TOOL IS TO BE PUT. THE TIME AT THE TEMPERATURE WILL BE APPROXIMATELY ½ TO 1 HR.
									SALT BATH	1425°F.	WATER OR BRINE	"		
										1500°F	OIL			
12	DRILL ROD GENERAL UTILITY WATER HARD CARBON TO SUIT OPEN HEARTH	SB103	MAX .95 .25 - - - - - - - - - MIN .10 .40 .025 .025 .30 - .15 - - - -	"	"	"	1500°F TO 1575°F	"	OPEN FIRE	1425°F.	WATER OR BRINE	"	THREADING TOOLS (CAL. SPEC)	
										1500°F.	OIL			
									SALT BATH	1425°F.	WATER OR BRINE	"		
										1500°F.	OIL			
13	WATER HARD CARBON TO SUIT SHAPES CAUC	SB104	MAX 1.20 .25 - - .15 - - - - - - MIN 1.30 .35 .025 .025 .25 - .10 - .25 - -	YELLOW	170 TO 190	"	1575°F TO 1650°F	"	OPEN FIRE	1425°F.	WATER OR BRINE	"	SMALL CUTTERS, SMALL TAPS, DRILLS, SLOTTING AND PLANING TOOLS, DRAWING DIES WOOD CUTTING TOOLS, TURNING TOOLS, LATHE TOOLS FOR CHILLED IRON, HOBS, FOR THREADING DIE, SHEAR BLADES, IN SIDE THREADING	
										1500°F.	OIL			
									SALT BATH	1425°F.	WATER OR BRINE	"		
										1500°F.	OIL			
14	"	SB104	MAX 1.10 .25 - - .15 - - - - - - MIN 1.10 .35 .025 .025 .25 - .10 - .25 - -	YELLOW AND BLUE	170 TO 190	"	"	"	OPEN FIRE	1425°F.	WATER OR BRINE	"	SMALL LATHE AND PLANER TOOLS, PRESS WORKING TOOLS, DRAWING DIES, PEEN HAMMERS, MANDRELS, CIRCULAR FORMING CUTTERS AND BORING TOOLS.	
										1500°F.	OIL			
									SALT BATH	1425°F.	WATER OR BRINE	"		
										1500°F.	OIL			
15	"	SB104	MAX 1.05 .25 - - .15 - - - - - - MIN 1.05 .35 .025 .025 .25 - .10 - .25 - -	YELLOW AND GREEN	170 TO 190	"	1550°F TO 1600°F	"	OPEN FIRE	1425°F.	WATER OR BRINE	"	SMALL COLD CHISELS, SMALL SHEAR BLADES, LARGE TAPS, BUTTON DIES, TRIMMING DIES, TURNING TOOLS, PLANER TOOLS, DRILLS, CUTTERS, SLOTTING AND MILLING TOOLS, CIRCULAR CUTTERS FOR RUBBER AND PHENOL FIBRE, SMALL SHEAR BLADES, THREADING DIES.	
										1500°F.	OIL			
									SALT BATH	1425°F.	WATER OR BRINE	"		
										1500°F.	OIL			
16	"	SB104	MAX .96 .25 - - .15 - - - - - - MIN .95 .40 .025 .025 .25 - .10 - .25 - -	YELLOW AND RED	170 TO 190	"	1575°F TO 1600°F	"	OPEN FIRE	1450°F.	WATER OR BRINE	"	HOT AND COLD SETS, CHISELS, DIE SHEAR BLADES, SMITHS TOOLS, SET HAMMERS, SWAGES, FLATTENERS, SPRINGS AND CHISELS.	
										1525°F	OIL			
									SALT BATH	1450°F.	WATER OR BRINE	"		
										1525°F	OIL			
17	"	SB104	MAX .75 .25 - - .15 - - - - - - MIN .85 .40 .025 .025 .25 - .10 - .25 - -	YELLOW AND BROWN	170 TO 190	"	1475°F TO 1525°F	"	OPEN FIRE	1450°F.	WATER OR BRINE	"	SHEAR BLADES, HAMMERS, DROP FORGE DIES, SLEDGES, CABLE TRIMMING KNIVES, COLD HEADING DIES	
										1525°F	OIL			
									SALT BATH	1450°F	WATER OR BRINE	"		
										1525°F	OIL			
18	SPECIAL WATER HARD CARBON STL RODS AND SHAPES	SB105	MAX .20 .25 - - .40 - .10 - .SPT - - MIN .30 .35 .02 .12 .55 - .25 - .SPT - - MAX .10 .25 - - .40 - .10 - .SPT - - MIN .20 .35 .02 .12 .55 - .25 - .SPT - -	NONE SPECIFIED	170 TO 190	"	1600°F TO 1650°F	"	OPEN FIRE	1400°F	WATER OR BRINE	"	TAPS	
										1500°F	OIL			
									SALT BATH	1425°F	WATER OR BRINE	"		
										1500°F	OIL			

FIG. 2—THIS TYPE OF TOOL STEEL CLASSIFICATION CHART IS EMPLOYED BY THE WESTERN ELECTRIC CO. IT SERVES TO IDENTIFY VARIOUS STEELS AND ASSISTS IN PREPARING PURCHASE SPECIFICATIONS

100,000 pounds per square inch tensile strength. The distinguishable characteristic is the resistance to shock. It is only by heat treatment that inherent values of alloying elements are brought out.

Typical effects of each alloying element on carbon steels are:

Carbon—affects strength, toughness, hardness, etc., and is in a class by itself as an alloying element.
Nickel—toughening element, increased resistance to shock.
Chromium—hardening element.
Vanadium—hardening and toughening.
Tungsten—small percentages produce increased hardness, large percentages produce red hardness.

The effects of these elements, measureable in steels when drawn to a point where they can be tested in a tensile machine, are present in steel hardened to blanking die hardness, but we look for these effects in a different manner, namely, in hardness values, fracture and microstructure. Theoretically, the manner in which alloying elements are effective is debatable, but in general, they seem to affect the transition point so that the critical quenching speed, or the rate of speed with which the steel passes through the critical point, permits a mild quench in oil to give the same or improved results with alloy steels that a drastic quench in brine gives with the straight carbon steel.

This brings us to the so-called nonshrinking steels. Practically all of the types of this steel now on the market harden in oil. Reasoning by analogy, it would be said that a steel which will harden by cooling in air or even better in molten salt or lead at 1050 degrees Fahr. would show even less distortion. There is such a steel and it is high speed steel. The writer wishes to point out that there is no such thing as nondistorting steels. The alternate heating and cooling of steel distorts it by reason of changes occurring within the metal itself, the ultimate results being the summation of several factors, including size, design, change of section, rate of heating, length of time at temperature, previous conditioning of the metal, and more than any other how the die is plunged into the quench.

The simple experiment of heating a 0.092-inch carbon steel drill rod through its critical range when under tension from a rubber band illustrates the small force required to cause permanent deformation. In Fig. 1 is shown a die which cracked due to intricacy of design and lack of fillets, etc. It is not to be wondered at that hardened dies of this type distort and sometimes crack, in fact, it would be miraculous if they did not. It is practically impossible to cool a piece of steel with varying cross sectional areas such as this has at the same rate of speed and our best solution is to keep sections as uniform as possible and to allow generous fillets.

When and where to use carbon, special alloy, or high speed steel depends entirely on the job to be performed. In cutting tools, if the speed of the operation raises the temperature of the tool above that which that particular type of steel can be drawn to and still retain its desired hardness, then a high speed steel is absolutely essential. Our milling section now uses practically 90 per cent high speed steel cutting tools. There are jobs, however, where in addition to cutting qualities, a high shock or impact value is necessary. Jobs of this kind must be operated at slower speeds and here carbon tool steel is used because of its soft ,tough core.

For blanking punches and dies on jobs such as nickel silver, carbon tool steel sheet, silicon steel sheet, in general, we favor high speed steel over carbon tool, as we have found that it gives longer life. For these tools, no red hardness is involved. For the general run of soft steels, brass, copper, etc., the economies to be effected by changing from carbon to high speed still is a debatable subject. We are investigating several alloy steels and one containing 2.1-2.6 carbon, 0.2-0.3 manganese, 0.025 sulphur, 0.025 phosphorus, 0.25-0.5 silicon, 10.0-13.0 per cent chromoium, and vanadium optional, gives promise of being even better than high speed steel from the standpoint of nondistortion, ease of heat treatment, long life, cost, etc. In Fig. 3 is a sheet showing the Western Electric Co.'s method of classification for marking drawings. In addition to simplifying such marking, these classifications facilitate the selection of steels by tool and machine designers and men in the shop.

As a result of observing 13 different blanking tools operate through 113 setups over a period of 18 months, our tool standardization department found that in 46 per cent of the cases, the setups were taken down for some reason other than that the tool became dull. In 54 per cent of the cases where the tool did get dull as shown by throwing a burr on the piece and causing its rejection in the inspection department, the careful selecting of any two or three week period of production would have shown any of the 13 tools to be better than the others.

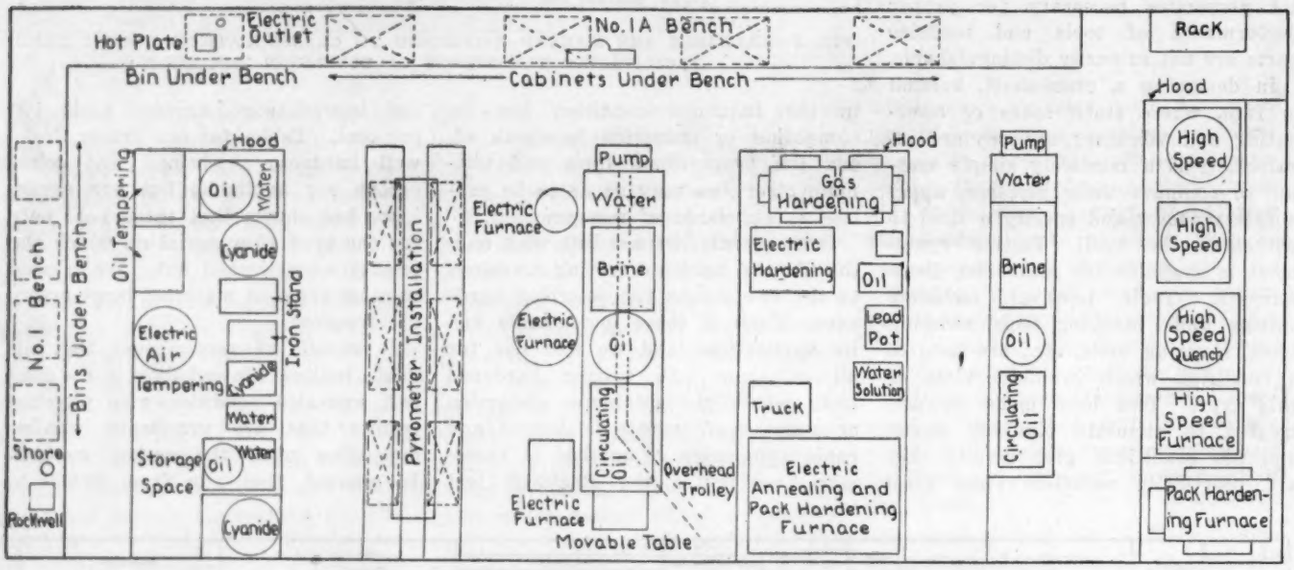
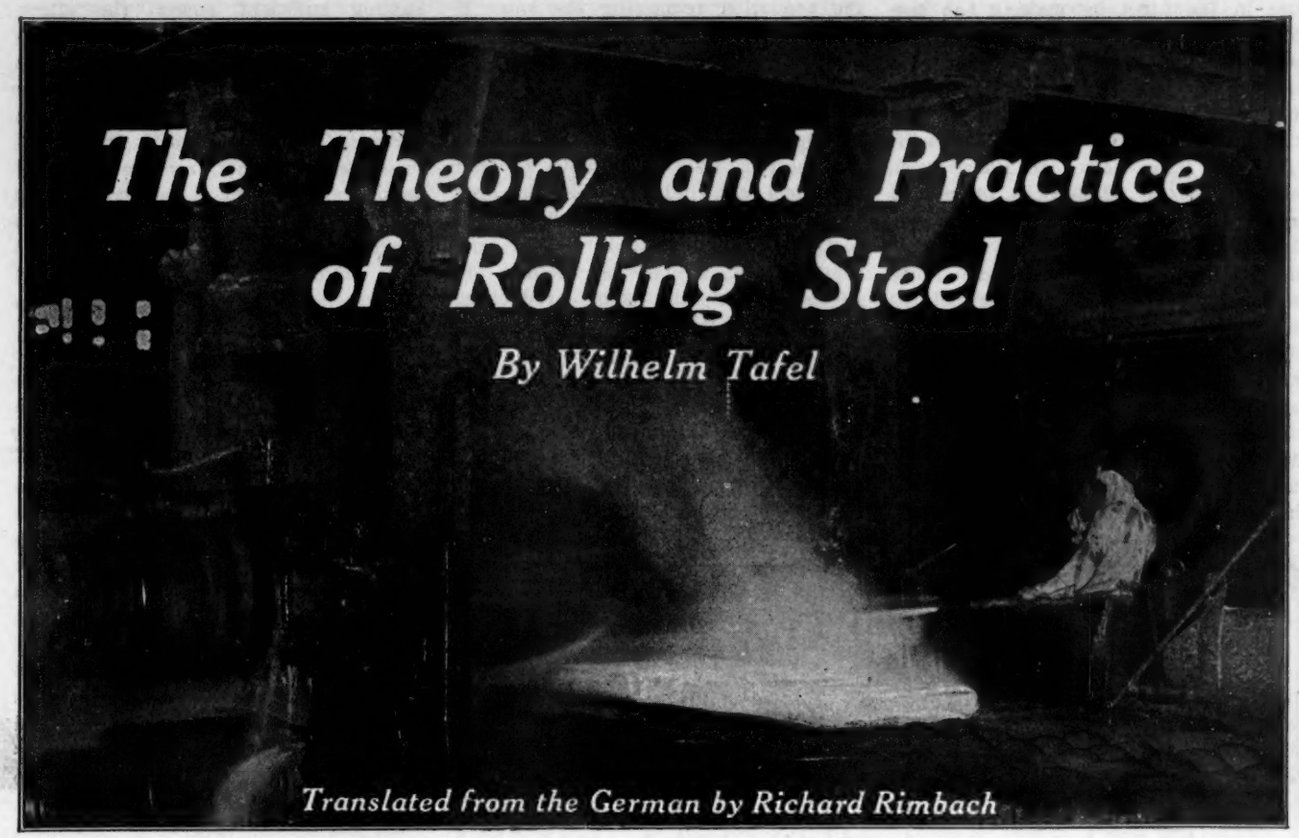


FIG. 4—MANY FEATURES ARE INCORPORATED IN THE NEW HARDENING ROOM OF THE WESTERN ELECTRIC CO. AMONG THEM ARE THE CENTRAL CONTROL PANEL AND HIGH SPEED INSTALLATION



The Theory and Practice of Rolling Steel

By Wilhelm Tafel

Translated from the German by Richard Rimbach

Chapter IV—Continued

BLOOMING passes are of the open or box type. The box passes are either bounded above and below by parallels or they have a depression as shown at *A* in Fig. 116, in which the dimension, *z* usually is from 0.315 to 0.394 inch according to the size of the pass. They are used mostly in the first three passes. The object of the depression is to prevent fin formation at the depressed part after turning up and to lessen the impact when the rolls grip the piece. The reason for the latter effect is, that with the parallel surfaces indicated by the dotted lines at *A* in Fig. 116 the ingot is gripped simultaneously over the whole upper and lower surface of the rolls, which results in an impact; while with the depressed passes the rolls first grip where the diameters *D* are largest. Until the whole surface and the smaller diameter, *d*, grips the ingot must have passed through the distance *s* as shown at *B* in Fig. 116. Finally the depression also diminishes the spread somewhat, because the central pressed part of the stock pulls along the outer part. On the other hand the slip, which the difference in diameters *D* and *d* must occasion, causes a somewhat increased use of power.

The taper is chosen from 4 to 10 per cent. A large taper is more advantageous, because the ingot is more easily released from the pass if too much draft should be given. On the other hand a large taper requires room in the length; therefore where this is scarce, space can be saved by using smaller tapers.

In the parting of the pass as well as in its corners the sharp corners are rounded off. If the radius of the former is *r*, the radius of the latter *R*, and the draft h_1 and h_2, then make:

r about $= 0.25$ to $0.3 \times (h_1 - h_2)$
R about $= 0.5 \times (h_1 - h_2)$

With different values for h_1-h_2, the larger draft should be used. The proper ingot size for the blooming roll, depends on the weight of the charge; the number of sets of ingots which are to be poured from each charge; and on the height of the ingots, which is limited by the consideration of their stability and the size of the available heating furnaces. The desire to eliminate cavi-

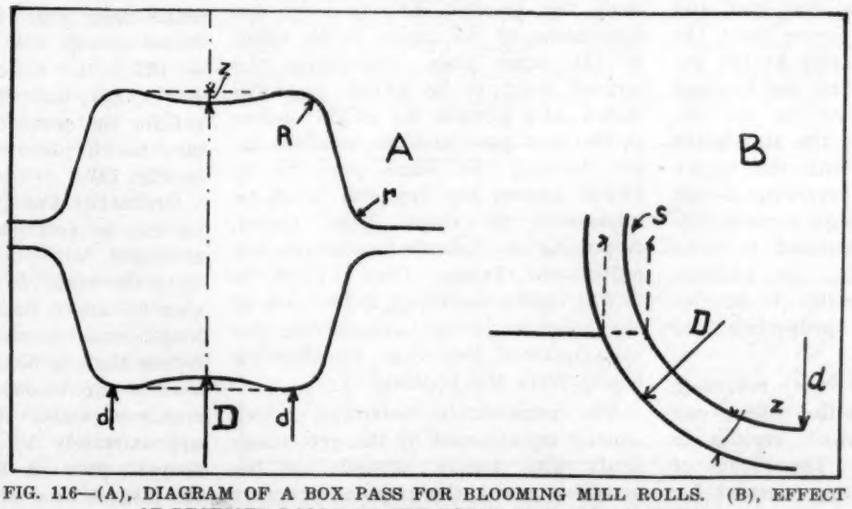


FIG. 116—(A), DIAGRAM OF A BOX PASS FOR BLOOMING MILL ROLLS. (B), EFFECT OF RECESSED ROLLS ON THE UPPER EDGE OF AN INGOT

ties in the ingot by making the material more dense and pressing in displaced material, leads to the choice of the largest ingot cross-sections possible. With increasing cross-section the tendency to form such cavities increases. It is better to pour dense ingots in the steelworks, than to attempt to make porous ingots dense by rolling. The rolling mill crew has little interest in ingots with too large a cross-section, which necessitates considerable power, and, therefore, influence unfavorably the total operating costs from the raw materials of the steel mill to the finished rolled material. With careful deoxidation and degasification, a reduction of the cross-section of 10:1 to 15:1 from the ingot to the finished product from the

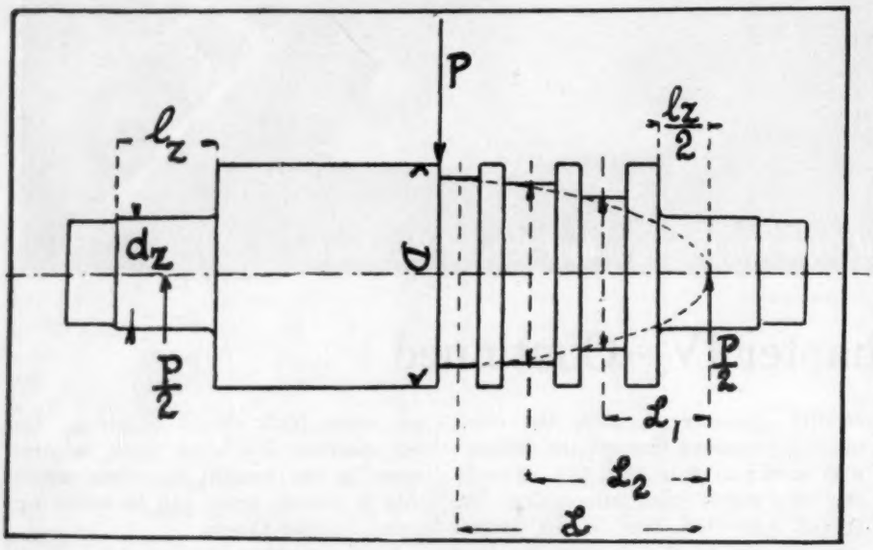


FIG. 117—ROLL DESIGN IN WHICH THE BODY HAS THE SAME STRENGTH AS THE NECKS

point of condensation of the material ordinarily can be considered as sufficient.

Blooming mill rolls are arranged as 3-high and reversing 2-high. The method of driving is important. From the standpoint of the first cost and the efficiency of the power plant the flywheel drive is superior to the reversing drive but without the flywheel the 3-high is superior to the reversing 2-high. From the standpoint of rolling, at least with the larger blooming trains, the reversing 2-high is preferred to the 3-high because tilting tables are not required to raise and lower the ingots. In addition the average roll diameter is smaller with equal gripping properties and equal strength.

As the speed of the reversing motors can be varied the rolling can be started slowly which results in impact-free gripping. The output of the mill is approximately constant for all passes, while in the 3-high with the reduction remaining the same it decreases from pass to pass. Due to the higher speeds in the later passes the reversing 2-high gives the largest possible production. With the 3-high it is difficult to make the top and bottom rolls adjustable so that the steel can only be entered once in each pass. For the same cross-sectional reduction more passes and, consequently, longer roll bodies are needed. For the same reduction, shorter rolls with the same diameter and strength as weaker rolls can be used with the adjustable 2-high mill. The weaker rolls have the essential advantage that the work lost due to spread is decreased. The efficiency of the rolling process, therefore, is increased and the desired reduction achieved in less time.

The disadvantage of the reversing blooming mill with repeated use of the pass is only equalized in a small way by a cheaper roll storage. The adjustment must be somewhat smaller than the greater difference in the dimensions of the ingots to be rolled in the same pass. Assuming the largest ingot to be 19.685 x 19.685 inches and pressed to 17.717 inches in the first pass and the smallest ingot leaving the same pass to be 12.205 inches, the top roll must be adjustable to about 7.480 inches. According to American practice the adjustment ranges from 27.559 to 39.370 inches according to the size of the rolls to permit dismantling the rolls without removing the bearing blocks from the housings.

The permissable reduction, which usually is expressed by the percentage draft with ingots, depends on the available power, the gripping property and the strength of the rolls. Assuming sufficient power, the allowable reduction increases with increasing roll diameter because this increases the strength as well as the ability to grip. The reduction seldom exceeds 25 per cent with large material and 30 per cent with small ingot cross-sections of commercial quality. In the last pass, as far as the rolling of the billets is concerned, it is advisable to use draft from 10 to 20 per cent so that the dimensions will be uniform.

Conditions, which permit large drafts, depend on the choice of the roll diameter for a definite draft with respect to the gripping of the rolls and to the strength of the rolls. According to Hirst a pair of rolls grip if the angle of grip is smaller than 30 degrees. For example, as shown in Fig. 119 $[R - (d \div 2)] \div R =$ cosine 30 degrees $= 0.866$ ($d = h_1 - h_2 =$ draft). Therefore, $D_a = 2R = d \div 0.134 =$ or approaches $8d$. Therefore, for the roll to grip, its working diameter at least must be eight times larger than the draft, which is based on the incompletely correct assumptions, that half the draft goes to the upper and half to the lower roll. That the ability to grip is dependent on other matters was pointed out in Chapter II. The per cent draft in 1/100 parts of E is $d = (E \div 100) \times h_1 = D_a \div 8$. Therefore, $D_a = E \div 12.5 \times h_1$. This gives with 25 per cent draft, $D_a = 2h_1$; with 20 per cent draft, $1.6h_1$; with 15 per cent draft, $1.2h_1$; and with 10 per cent draft, $0.8h_1$. Therefore, the larger the draft, the larger must be the working diameter with a blooming pass in relation to the height of the stock if the roll should grip.

Rolls and roll housings should be designed according to the principle of equal strength. The bodies should have the same strength as the neck but the housings should be larger. Both must resist the force, P ÷ 2 which from Fig. 117 equals $(3.1416d^2_a \times k_b) \div (32 \times l_a = (3.1416D^3_1 \times k_b) \div (32 \times L_1 = (3.1416D^3_2 \times K_b) \div (32 \times L_2)$, etc. This gives a parabola for the curve to which the passes may be cut onto the body, as shown in Fig. 117.

Ordinarily the diameter in the center can be determined and the passes arranged with increasing depth toward the edge. If the resultant diameter is larger than desired, the body length must be shortened. Diameters larger than 43.307 inches are not advisable for blooming rolls. The demand of equal strength is fulfilled approximately by the rule that the deepest pass at the edge and with the largest wear should not be weaker than the neck. In most rolls the

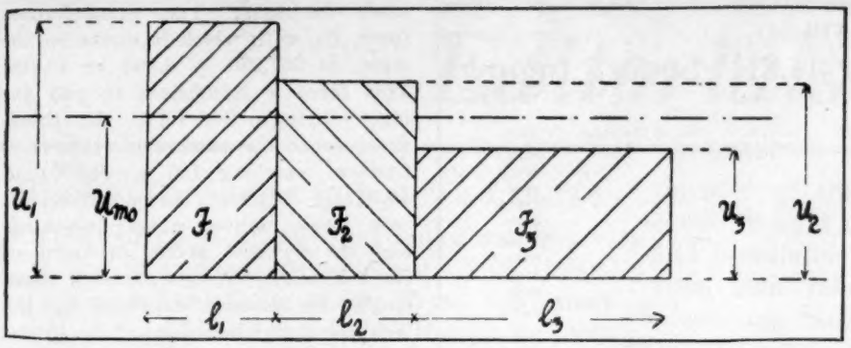


FIG. 118—ROLL SECTION SHOWING THE WORK PERFORMED IN EACH PASS

relations set up for gripping will give sufficient strength.

If the power requirement, A, for the pass in question is the work expended in foot pounds; U, the force necessary for the rolling process effective at the circumference of the rolls in foot pounds; and, l the length of the ingot after the pass, then U, which equals $A \div l$, is known for each pass as soon as A is calculated. If U is drawn as the ordinate and l as the abscissa in a diagram, the work performed in each pass, as shown in Fig. 118, may be designated as the surfaces F_1, F_2, F_3, etc. If the train has equal speed, as in the case with the 3-high driven by a flywheel engine, the number of passes, t_1, t_2, t_3, etc., are related to one another as the lengths l_1, l_2, l_3. The rolling work is determined from the volume of the stock, the elastic limit in compression and the elongation. If the latter is assumed equal for every pass and for the elastic limit in compression, the same amount of rolling is necessary for every pass, because the volume of the ingot also remains constant. In pass two the rolling takes longer than in pass one and longer in pass three than in pass two. The longer the time required for a certain work, the smaller the efficiency.

From this it is clear that with the reduction and equal rolling speed, the efficiency is lower with decreasing pass-section, or in the same amount as U, as shown in Fig. 118. The efficiency and the circumference force are proportional when the rolling speed remains the same. The engine and train therefore are used less efficiently with continued reduction in section.

This is different with a reversing engine without a flywheel, where the speed varies from 0 to a maximum. In this case the rolling speed, V, can be increased in the same amount as the circumference force decreases as shown in Fig. 120 and receive constant efficiency. The work in the time unit is equal to the effective force, U, times the path through which it acts in the time unit, therefore times the rolling speed or $L = U \times V$.

If in Fig. 120 L_1, L_2, L_3 are assumed as equal perhaps to the maximum efficiency L of the primary engine of a transformer, V_1, V_2, V_3, etc., will be given as $L \div U_1$, $L \div U_2$, $L \div U_3$ as U_1, U_2 U_3 and V_1, V_2, V_3 etc., are given by the formula $A = U \times l$. The proper rolling speed

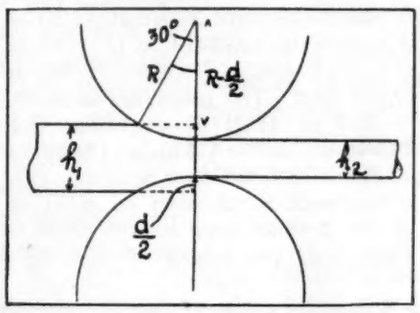


FIG. 119—ABILITY OF A ROLL TO GRIP DEPENDS ON GRIPPING ANGLE

need not first be determined because it results automatically as long as the engine gives the mentioned output. With decreasing ingot cross-section the rolling speed becomes faster and faster.

The diagrams in Figs. 118 and 120 can be used to match the drafts in the individual passes to the available engine power. For this purpose the efficiency equation used is $L = (U_o \times n \times 3.1416 \times D) \div (60 \times 550) = (U_{mo} \times V) \div 550$. The circumference force is U_{mo} in regard to the average roll diameter D in feet which the motor is capable of delivering. V is the rolling speed in feet per second, n the speed of the train and L the capacity of the engine in horsepower. The value for U_{mo} and for the circumference forces U_1, U_2, U_3, etc., occurring in the inindividual passes are incorporated in the diagram which can be calculated from A and l_1, l_2, l_3, etc; and with equal drafts from $A_1 \div l_1$, $A_2 \div l_2$, $A_3 \div l_3$. For its determination drafts of about 15 per cent for the first two must be assumed, 20 per cent for the two following and 25 per cent for the remaining passes. If the values of U_1, U_2, U_3, etc., remain under U_{mo} the assumed drafts can be retained. If they exceed U_{mo} the draft in those passes must be modified for otherwise the engine would be stalled. The modification of the draft should be such that the newly calculated U_1, U_2, etc., are somewhat lower than U_{mo}.

The foregoing applies for engines without flywheels. If a flywheel is used the degree of inequality, d_s, must be decided in regard to the quotient, that is, the largest minus the smallest divided by the average speed or, $d_s = (V_{max} - V_{min}) \div V_{av}$. For blooming mills this can be taken as one-fifth. From this the work expended by the flywheel is obtained, in that its speed is diminished by 20 per cent in foot pounds. Therefore, $A_s = (MV^2 \times d_s) \div 0.9$, where M is the mass of the flywheel circumference, d_s the degree of inequality, V the circumference speed in feet per second. From this equation U_s results which is to be added to the U_{mo}.

An example of the foregoing description follows. The theoretical work requirement of the first pass of a blooming roll with 15 per cent draft amounts to 506,310 foot pounds. After the first pass the length will be 6.562 feet, the rolling speed is 4.921 feet per second and the roll diameter 3.281 feet. The mill is driven by a 1000-horsepower motor. The circumference force expected from the motor with relation to the roll diameter, accord-

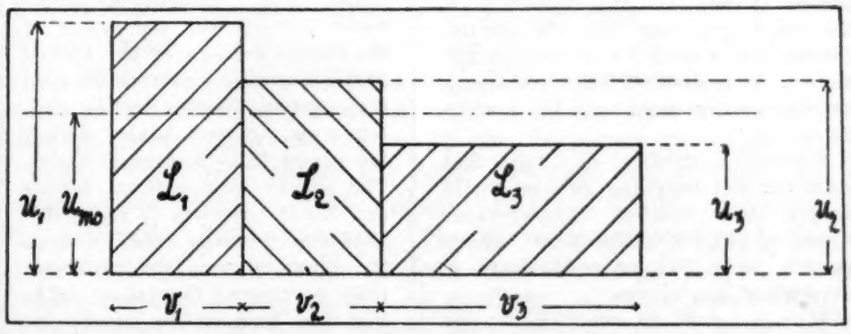


FIG. 120—ROLL SECTION SHOWING THE ROLLING SPEED IN EACH PASS WITH CONSTANT OUTPUT

Table VIII

Stages of Reduction for 11.811" Square Ingot

No. of passage	Draft per cent	Ingot dimensions after the pass, inches	$\frac{b}{h}$	No. of the pass	Exit
1	15	10.039 x 12.402*	1.25‡	I	rear
2	15	10.630 x 10.630*			front
3	15	*11.142 x 9.055*	1.25‡		rear
4	15	*9.448 x 9.606			front
5	15	*8.071 x 10.079*	1.30‡		rear
6	15	8.593 x 8.543*		II	front
7	15	*9.016 x 7.284*	1.24‡		rear
8	20	*7.244 x 7.874			front
9	20	*5.748 x 8.346*	1.45†		rear
10	20	6.299 x 6.693*		III	front
11	20	*6.782 x 5.354*	1.25†		rear
12	20	*5.354 x 5.827		IV	front
13	22.5	*4.134 x 6.260*	1.50†		rear
14	25	4.646 x 4.724*		V	front
15	25	5.039 x 3.543*	1.45†		rear
16	15	*4.291 x 3.780			front
17	10	*3.898 x 3.898			rear

*Dimensions which receive draft.
†Stock is tilted.
‡Stock is tilted although the tilting can be delayed one pass without b/h being too large.

ing to the foregoing equation, amounts to: $1000 = (U_{m_0} \times 4.921) \div 550$. Therefore, $U_{m_0} = (1000 \times 550) \div 4.921$ or 110,000 pounds. With a roll train efficiency of about 50 per cent, according to the evaluation of the Puppe tests made by the author, the effective power requirement equals 2 × 506,310 or 1,012,620 foot pounds. To produce this on an ingot 6.562 feet long, a circumference force $U_1 = 1{,}012{,}620 \div 6.562$ or 154,000 pounds is necessary while only 110,000 pounds is available. The motor, therefore, would be stalled in the first pass with 15 per cent draft if a flywheel was not used.

Whether the motor will perform without the aid of the flywheel can be determined according to the following example. The circumference force of 154,000 pounds moderates itself as the natural logarithm of the elongation. According to the following,

Draft = d per cent	Elongation $n = \frac{100}{100-d}$	Nat. Log. of n	Circumference force, lbs.
15	1.18	0.17	154,000
12.5	1.14	0.14	127,600
10	1.11	0.11	99,000
7.5	1.08	0.08	72,600

the draft permissable by the available motor capacity, therefore, lies between 10 and 12½. To remain below, 10 per cent is chosen. With passes II and III the procedure is the same until one with its circumference force lying below that of the motor is received. The remaining smaller passes need not be investigated.

Whether a flywheel of 19.685 feet diameter and weighing 20 tons would supply the missing circumference force of 154,000—110,000 or 44,000 pounds with 15 per cent draft is determined as follows.

With d_1 equal to one-fifth the retarding work, A_0, equals $(MV^2 \times d_0) \div 0.9$. For the determination of V, the speed of the train with a rolling speed of 4.921 feet per second must be calculated. Since the roll diameter equals 3.281 feet it amounts to $z = (60 \times 4.291) \div (3.281 \times 3.1416)$ or 29 revolutions a minute. From this $V = (z \times 3.1416 \times D \div 60$ or $(29 \times 3.1416 \times 19.685) \div 60$ or 29.528 feet. The mass, M, is 44,000 ÷ 32.2 or 1370; $d_0 = 1/5$ or 0.2. Therefore, $A_0 = [1370 \times (29.528)^2] \div 0.9$ or 267,620 foot pounds. This is the work which must be given up by the flywheel over a path equal to 6.562 feet, the length of the ingot after the pass. The circumference force, U_0, with which it works on the ingot, is 267,620 ÷ 6.562 or 40,700. This force is insufficient to pull the ingot through the rolls. It, therefore, would be necessary to have a flywheel weighing (20 × 44,000) ÷ 40,700 or 22 tons. The motor in this case would deliver about two-thirds and the flywheel about one-third of the roll work. With increasing ingot length the amount delivered by the flywheel would increase.

In the 3-high mill an overdraft from 0.315 to 0.591-inch is given purposely to be certain that the ingot is pressed against the guide and to prevent it from rising. In the 2-high mostly underdraft is given. The heavy ingots which are rolled there, are prevented from rising due to their weight; the underdraft diminishes the load on the rollers. To use the dead passes of the 3-high mill, the same pass is not cut so deeply into the upper roll as into the lower in order to give the ingot draft. The overdraft often is increased to 1.969 inches and more and while this consumes power it affords the saving of space in the case of the 3-high mill.

The original and final cross-section of the ingot generally are square. The draft, therefore, cannot always be in the same direction because the ingot would have the shape of a pressed rectangle. In blooming, the stock is edged by turning 90 degrees at intervals.

Fink has proven mathematically and Kiesselbach has determined from the Puppe tests that the specific power requirement, that is, the energy requirement per ton of elongated material becomes smaller the larger the draft is chosen. Inside the previous standing limits of strength, ability to grip, capacity of machinery and material a draft ranging from 25 to 30 per cent would be chosen.

The permissable draft will be 15 per cent for an ingot 11.811 × 11.811 inches, 20 per cent for an ingot 7.874 × 7.874 inches and 25 per cent for smaller cross-sections. The draft of the last pass when producing billets should be about 10 per cent. The tilting fingers should be installed on the exit side of the mill. The smallest cross-section should be about 3.937 inches square. The spread amounts to one-third of the draft. Other details are presented in Table VIII. In passages No. 3 and 4 the drafts are mediated slightly so that the rolls do not have to be raised. In the case of steel rolls the inner collars are made to equal one-half the pass depth while the outer collars are chosen so that a heavy guide has room between the stand and the edge pass.

Rate Refund Is Given To Foundrymen

FOUNDRYMEN in the St. Louis district recently were entertained at a unique luncheon to which they were invited by Charles Fitzgerald, local representative of the Sloss-Sheffield Steel & Iron Co., Sheffield, Alla. Invitations had stated that important federal matters were to be considered. After the luncheon was served, Russell Hunt, secretary treasurer of the company, drew from a wallet checks totaling $25,000 *and distributed them among the foundrymen. The melon cutting was the result of the recent decision of the United States Supreme Court which held that certain charges by the railroads on pig iron hauled during the period* 1910-15 *were excessive. The excess was ordered turned over by the carriers to the Sloss-Sheffield company and in turn the company paid its customers their portion of the rebate. The suit had been in the courts for* 11 *years.*

Editorials

Rivers To Shape Industry's Course

COMPLETION of the first important link of the tremendous development of the inland waterways of the Middle West, the canalization of the Ohio river from Pittsburgh to Cairo, Ill.—a distance of 1000 miles—will have been accomplished by 1929 if present plans of the congress of the United States engineers persist. Quick to grasp the significance of waterways improvement, the important iron and steel works scattered all the way down the Ohio are following the lead of large coal operators in shipping to New Orleans and points between.

Three important obstructions to successful commercial navigation of the Ohio river are being eliminated all at the same time; the shallowness of the channel depth in summer, the lack of adequate means of transporting bulk commodities, and economical terminals that will continue the savings begun by the actual river transportation itself. The final step in making this means of transportation effective is to arrange with the railroads and truck lines for joint or through rates for further distribution of the freight from the water lines.

Thus the 150-year old dream of the Middle West is coming true. Economical transportation of bulk freight has been demonstrated for years in the immediate Pittsburgh district in the handling of coal, sand, gravel, etc., and now steel products. Future development is merely a matter of feeling one's way along practically in the use of present facilities. They will supplement rather than supplant the railroads, it is believed, actually proving to be "feeders" for them.

What this will mean to industry, including superpower plant development in that section already dominating the nation's manufacturing progress, challenges the imagination.

Railroad Efficiency Lessens Needs

IT HAS been difficult, the past two or three years, to reconcile the spare buying of new equipment by the railroads with the extraordinary movement of freight. Car loadings have topped the million mark week after week. The average car loading and daily average car movement never have been so high. This intensive utilization of equipment might well be taken to connote harder use and hence a more rapid rate of replacement, yet new freight car business has been spread rather thinly over the capacity of the car builders. One explanation comes to light in a comparison of car retirement and installation in 1925. The railroads dropped from their rolls 117,021 freight cars averaging a carrying capacity of 38.77 tons. They put on 125,750 cars averaging 47.37 tons each. Thus, while the gain in actual car units was only 8739, the increase in carrying capacity was almost 1,420,000 tons.

The iron and steel industry naturally views the car situation with mixed feelings but logic and economics make clear the ultimate answer. The producers of plates, shapes and bars, particularly plates, and the foundries specializing on car castings have suffered from the lack of car business, yet the railroads would seem to be justified from their standpoint in restricting purchases so long as they can move a record-breaking volume of freight expeditiously and without the suggestion of a car shortage. Equipment not absolutely essential would only impose charges that in the end would have to be reflected in rates.

Industries Build on Firm Basis

INVESTORS who have commented on the tremendous reserves built up by the United States Steel Corp. while dividends have been held within very conservative limits may compare their situation with those of the General Electric Co. At the same time the latter company's report affords a striking demonstration of where the great profits of industry are going.

The amount paid to investors in the General Electric Co. in the form of cash dividends and interest, but not including stock dividend, increased not quite 4 per cent from 1921 to 1925. In round figures, the amount in 1921 was $16,090,000 in 1921 and $16,720,000 in 1925.

The amount paid to all employes increased 30 per cent in the same years. It was $87,500,000 in 1921 and $122,500,000 in 1925.

Employes increased 19 per cent and stockholders 44 per cent in the same period.

Forty-two per cent of all the money received from customers by the company in 1925 was paid out in the form of wages and salaries, and the average employe received $1700, or almost $33 per week. The average amount paid per week to an employe in 1921 was $28.

The country is profiting in more ways than one, when wages to employes show such increases compared with cash dividends; it means

industry is being fortified and stabilized, which in turn assures employes and investors of continuous and better protection.

Physical Examinations an Advantage

THE great benefit derived by industrial employes through physical examination as required by employers is commented on in the current issue of the bureau of labor statistics' *Monthly Labor Review.* A few years ago the American Federation of Labor resisted physical examination of employes as a sinister device of capitalism to oppress labor, an ally of the blacklist, and this view of it still persists in many labor organizations.

The department of labor finds that not more than 2 per cent of those seeking employment are rejected as a result of a physical examination. In other words, two out of 100 applicants for jobs learn in this way that they are physically unsuited for the work required of them, and such knowledge rightly acted upon could be expected to put a large number of those rejected on the path toward regaining their physical efficiency. It is an advantage to them, more than a disadvantage.

The department, always giving sympathetic attention to the claims of the workers, has this to say, summarizing the results of its studies: "The advantages to the employes are better health, a reduced liability to accidents, greater efficiency, steadier employment, and more stable earnings. The employer gains by a reduced turnover, better quality of product, and a more contented force."

Expect Steady Structural Year

BACKWARDNESS of spring has been an important factor in limiting activity in the structural steel market during the past two months. Where in past years builders would rush into the market at the first signs of spring with demands for prompt shipment of materials, a hesitancy to do so was pronounced this year. A large number of projects originally scheduled for spring maturity are as yet unstarted. Comparisons of structural steel awards for buildings and bridges as reported each week in IRON TRADE REVIEW show a total to April 22 of 429,929 tons placed, considerably under the aggregate of lettings to April 23, 1925, which totaled 554,305 tons. Although department of commerce reports of bookings for the first quarter of 1926 exceed those of the same period of 1925, the decline in activity started in March has been more pronounced in the past several weeks

Engineers and builders are encouraged over the outlook, however, believing that the lessened activity in the early months of the year will occasion a high degree of construction during the ordinarily dull months of summer and late fall. An unusually long list of projects now is on architects' boards and in the estimating departments of fabricators. Since building demands are reflected quickly throughout a large number of allied lines as well as the fabrication of steel, such activity should contribute to modify any summer slump in steel operations.

What Our Readers Are Thinking

Power Back of Prosperity

A STUDY of the General Electric Co.'s largest factory, at Schenectady, where today 21,000 men and women are employed, indicates that supplementing the worker's skill by electrical power has enabled him to increase his earnings. This is along the lines that civilization has moved in the past. It has been the constant effort of man to produce the necessities of life in the least time and with the least effort. He has done this by the exercise of his ingenuity, first, by the use of animal power, then by mechanical power and still later, by electrical power. By such means he has increased, and eventually will still further increase, his productivity.

This analysis referred to covers the 12 years from 1914 to 1925 inclusive, that results before and after the war and postwar readjustments may be compared. During this period the cost of living increased about 68 per cent while the average earnings of the workers, not the hourly rate, but the actual dollars they received each week, increased 107 per cent, in other words more than doubled.

Let us assume that the average earnings in 1914 were $20 per week and the average cost of living was $18 per week, leaving a margin over and above the cost of living of $2 per week or 11 per cent. In 1925 the average income would be increased 107 per cent to $41.40 per week, while the cost of living would have increased 68 per cent to $30.24, leaving a margin of $11.16 per week or 37 per cent above the cost of living.

In this same period the electric power consumed in this plant, much of which is purchased from a public utility company operating hydroelectric plants, has also more than doubled, from 45,000,000 kilowatt hours in 1914 to 93,000,000 kilowatt hours in 1925, while the average number of workers increased 34 per cent.

This is in line with the declared policy of this country in the restriction of immigration. The problem, therefore, is to make workers more efficient and do the work that is necessary without a great increase in numbers and to gain these advantages it is necessary to supplement their ability and strength by more power, and that power electrical.

The product of this plant during the 12 years under review, measured in dollars, increased 179 per cent.

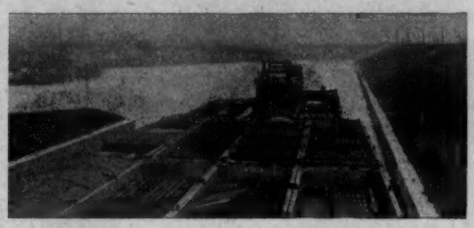
With more power supplied to the worker, he produces more with less effort and is thereby enabled to earn more money and improve his standard of living.—GERARD SWOPE, *president, General Electric Co.*

The Reader's Page

Vol. LXXVIII, No. 17 IRON TRADE REVIEW April 29, 1926

Important News in Europe—IRON TRADE REVIEW Is There

RELIABLE industrial news from Europe becomes more important in view of the many reports pertaining to the formation of combinations of iron and steel manufacturers for allocating markets or maintaining prices. The value of IRON TRADE REVIEW'S service in this respect is indicated in the article on European business conditions and new organizations page 1113. The REVIEW'S European manager spent considerable time visiting the continental countries recently, interviewing industrial leaders and studying the new line up of industries. To any one who has read the necessarily brief and fragmentary cable and radiograms of what is happening in the iron and steel industry of Europe his article will be instructive. Reports of this description will keep REVIEW readers informed of the international iron and steel situation.



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IRON TRADE REVIEW is published every Thursday by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers, Inc.; and National Publishers Association.

Charles J. Stark .....Editor
Earl L. Shaner .....Managing Editor
John D. Pease .....Advertising Director
Francis F. Light .....Circulation Manager

Branch offices: 1037 Old South Bldg., Boston; 1147 People's Gas Bldg., Chicago; 408 Edwards Bldg., Cincinnati; 2203-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburgh; 24 California street, San Francisco; 401 Westory Bldg., Washington. Foreign offices: Prince's Chambers, Birmingham, Eng.; 2-3 Caxton House, Westminster S. W. 1, London; 23 Rue de la Bienfaisance, Paris, France; Kurfurstendamm 136, Berlin-Halsensee, Berlin, Germany.

Cable address: *PENTON*, Cleveland; *IROTRAPEN*, London.

Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries, £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1926 by the Penton Publishing Co.*

The Business Trend

First Quarter Brings Better Earnings

BY JOHN W. HILL, Financial Editor

THREE significant developments in finance and business of the past week have been the cut in the rediscount rate of the New York federal reserve bank, the improvement of Wall street sentiment and the appearance of first quarter earnings statements from steel companies and others showing distinctly improved results compared with one year ago. Steel company earnings on capital investment are conspicuously low but their improvement despite low prices in the first quarter not only emphasizes the period's big volumes, but testifies to increased efficiency of steel works.

THE heads of large iron and steel companies take a sane view of the outlook. Each expresses, in one way or another, confidence that business is sound and that conditions are reasonably promising. None of them, however, indicates he has any idea that the recent high pitched activities will be maintained uninteruptedly. In fact figures are quoted showing that some abatement has already begun to appear, in accordance with seasonal expectations.

FOR instance, President E. G. Grace of the Bethlehem Steel Corp. points out that during March ingot outputs of his company reached 96.4 per cent of capacity, the highest ever attained, and they are now at 85 per cent. But of great significance is his statement that the volume of new business is sufficient to maintain operations at a better rate than in the corresponding quarter of 1925. Confidence in the outlook also is reflected in the action of the United States Steel Corp. in placing the common stock on a definite 7 per cent basis.

THE reduction in the discount rate of the federal reserve bank of New York, from 4 per cent to 3½ per cent came unexpectedly. It was a logical development however, in view of the recent piling up of idle funds and the decline in open market money rates. In January, the rediscount rate was advanced when stock market speculation was running to extravagant lengths and an excess of credit was being diverted into security speculation.

THE subsequent stock market decline has caused extensive liquidation of brokers' loans. Moreover, gold has been coming into the country in increasing quantities, further augmenting the credit supply. As a result of the money market development the stock market has given signs of revising its recently extremely pessimistic view of the business outlook.

The Barometer of Business

Industrial Indicators

	March	One month ago	One year ago	1913
Pig iron output (Daily average, tons	111,000	104,337	115,207	83,900
Blast furnace index 60 per cent = normal	62.4	58.4	60	62.8
Unfilled orders (tons)	4,379,935	4,616,000	4,863,564	4,513,000
Ingot output (Daily average, tons)	166,359	156,510	161,482	
Dodge Bldg., awards in 27 states (sq. ft.)	70,060,700	41,843,400	64,400,300	31,250,000
Automobile output	449,677	375,345	377,252	
Coal output, tons	45,540,000	46,674,000	37,626,000	39,869,000
Business failures; number	1,984	1,801	1,859	1,336
Business failures; liabilities	$30,622,547	$34,178,348	$34,004,731	$22,732,000
Cement production, Bbls.	10,323,000	7,731,000	11,034,000	7,704,000
Cotton consumption, bales	634,593	567,244	582,600	438,218
Car loadings (weekly average)	969,000	919,000	923,500	

Foreign Trade

Exports	$375,000,000	$352,916,000	$453,652,000	$194,000,000
Imports	$445,000,000	$388,503,000	$385,378,617	$149,900,000
Gold exports	$4,224,564	$3,851,374	$25,104,416	$5,234,000
Gold imports	$43,412,576	$25,415,655	$7,337,322	$5,900,000

Foreign Exchange

	Normal	April 26	One month ago	One year ago
Sterling	$4.86	$4.86	$4.85	$4.77
Francs	19.3c	3.35c	3.53c	5.18c
Lira	19.3c	4.02c	4.02c	4.06c
Marks	23.8c	23.8c	23.8c	.....

Financial Indicators

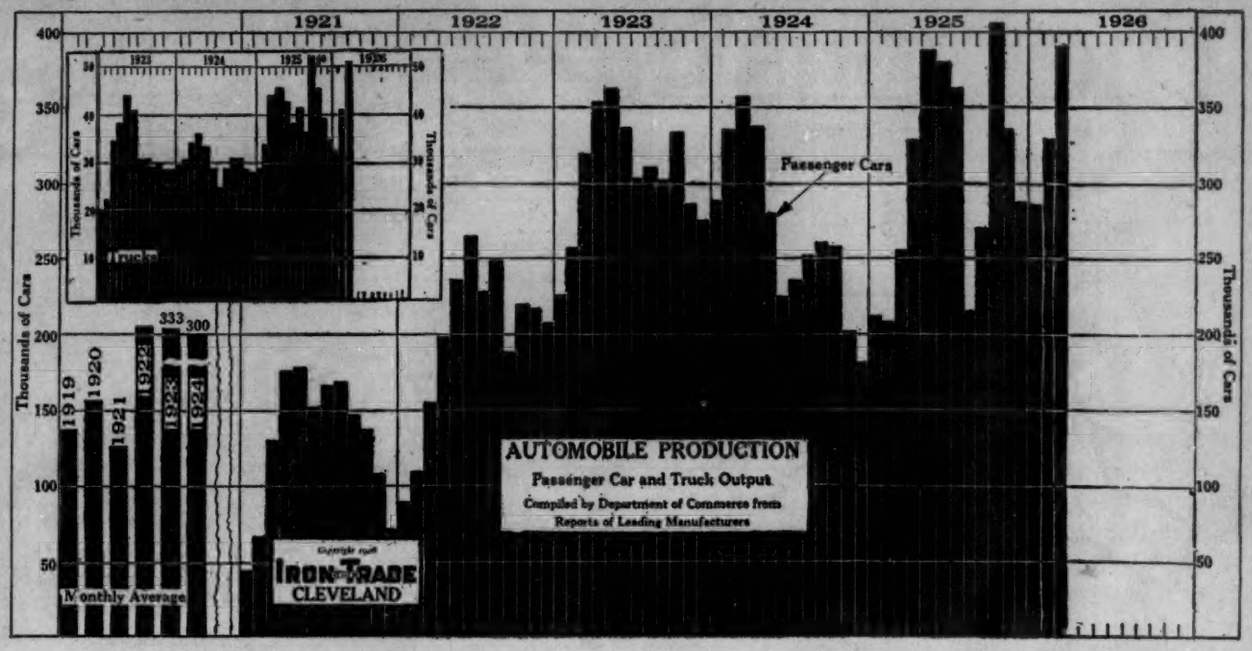
	March, 1926	One month ago	One year ago	1913
25 Industrial stocks	**148.07	$158.51	$137.04	$58.19
25 Rail stocks	**88.98	$85.91	$77.05	$82.90
40 Bonds	**87.54	$86.27	$83.23	$93.00
Bank clearings (000 omitted)	$48,505,299	$38,799,487	$42,009,334	$13,895,000
Commercial paper rate N. Y., per cent	4.25	4.25	4	5.60
*Commercial loans (000 omitted)	$8,479,341	$8,335,753	$8,219,978	
Federal reserve ratio, per cent	76	73	76.4	
Railroad earnings	†$63,289,297	$65,700,000	$65,151,052	$59,301,000
Stock sales, N. Y. stock exchange	52,271,691	35,725,989	38,294,393	6,924,000
Bond sales, par value	$269,540,850	$239,262,200	$309,941,100	$41,499,000

*Leading member banks Federal Reserve System.
†February.
**April 26.

Commodity Prices

	April 1	One month ago	One year ago	1913
U. S. Bureau of Labor Statistics	151.5	155	161	100
Bradstreet's index	141.7	144.9	148	100
Economist's (British)	150.4	152.3	172	100
Wheat, cash (bushel)	$1.74	$1.70	$1.50	92c
Corn, cash (bushel)	78c	74c	$1.03	51c
Petroleum, crude (Bbl.)	$3.65	$3.65	$3.55	$2.50

The Business Trend

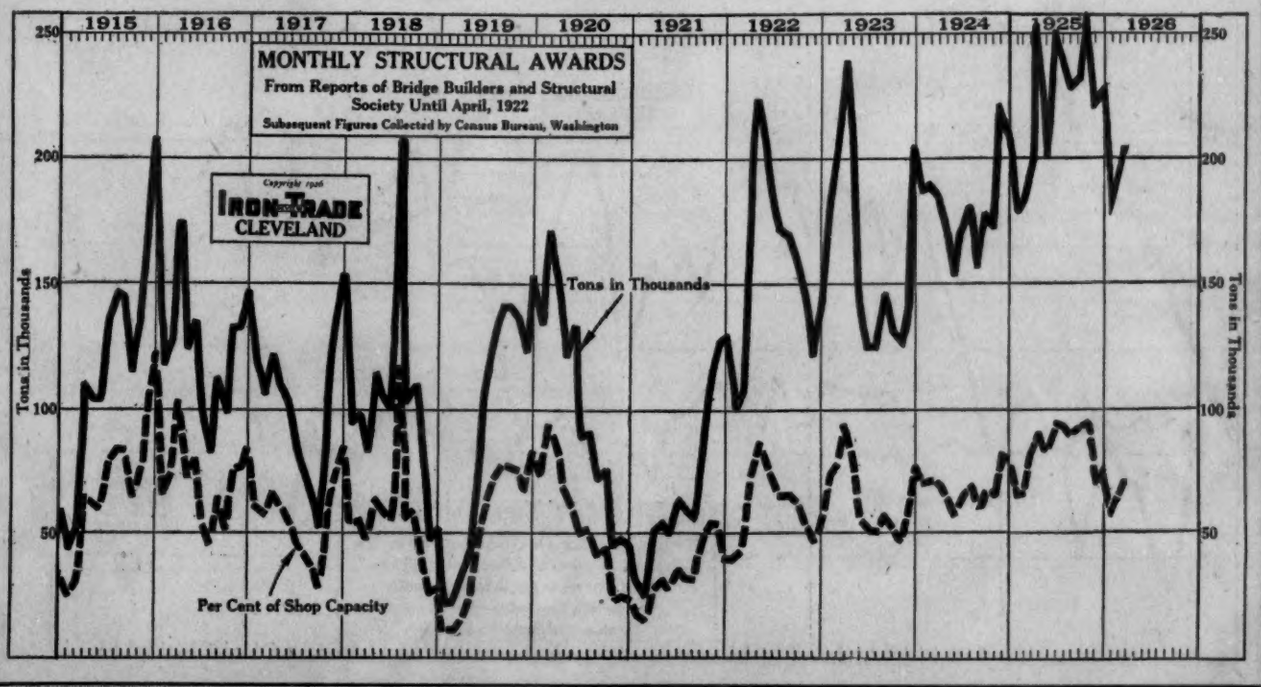


Automobile Production

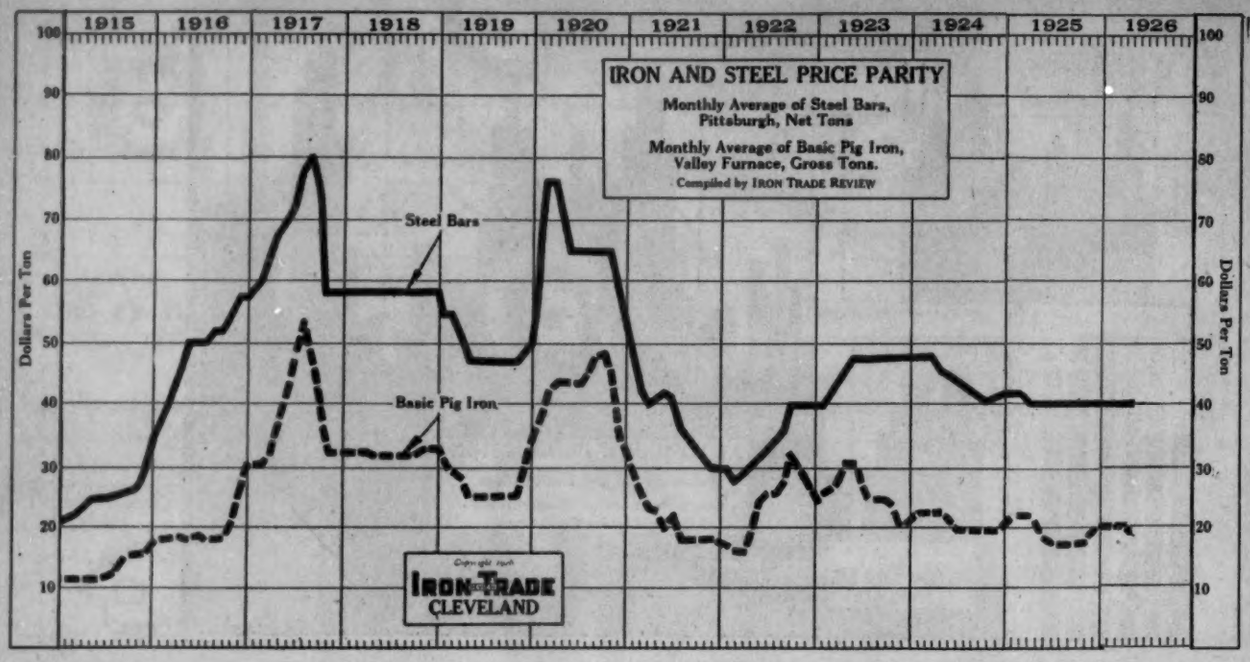
MORE automobiles were produced in this country and in Canada in March than in any preceding March in history. The total was 449,677 cars and trucks, an increase of almost 20 per cent over the corresponding month last year. The figure was the second highest for any month on record the peak having been reached last October with an output of 452,392 cars and trucks. During the past month automobile retail sales have improved and production remains high for many important plants.

Structural Awards

AN EXPANDING volume of structural projects is reflected in the report of bookings of structural steel for March compiled by the department of commerce. The total computed bookings for the month amounted to 207,400 tons, or 68 per cent of shop capacity, compared with 186,050 tons in February. That the activities in building are holding up practically to the level established last year is seen by the fact that in March, 1925, the computed bookings were 210,450 tons and 69 per cent of capacity.



The Business Trend

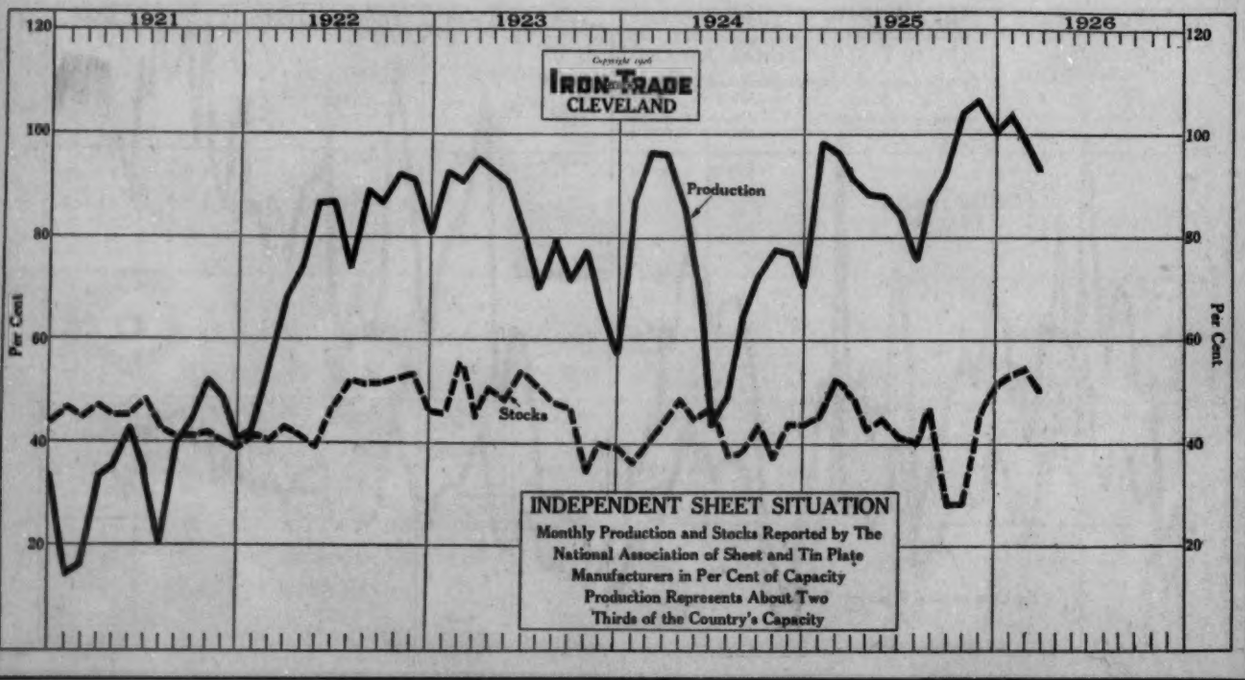


Steel Price Parity

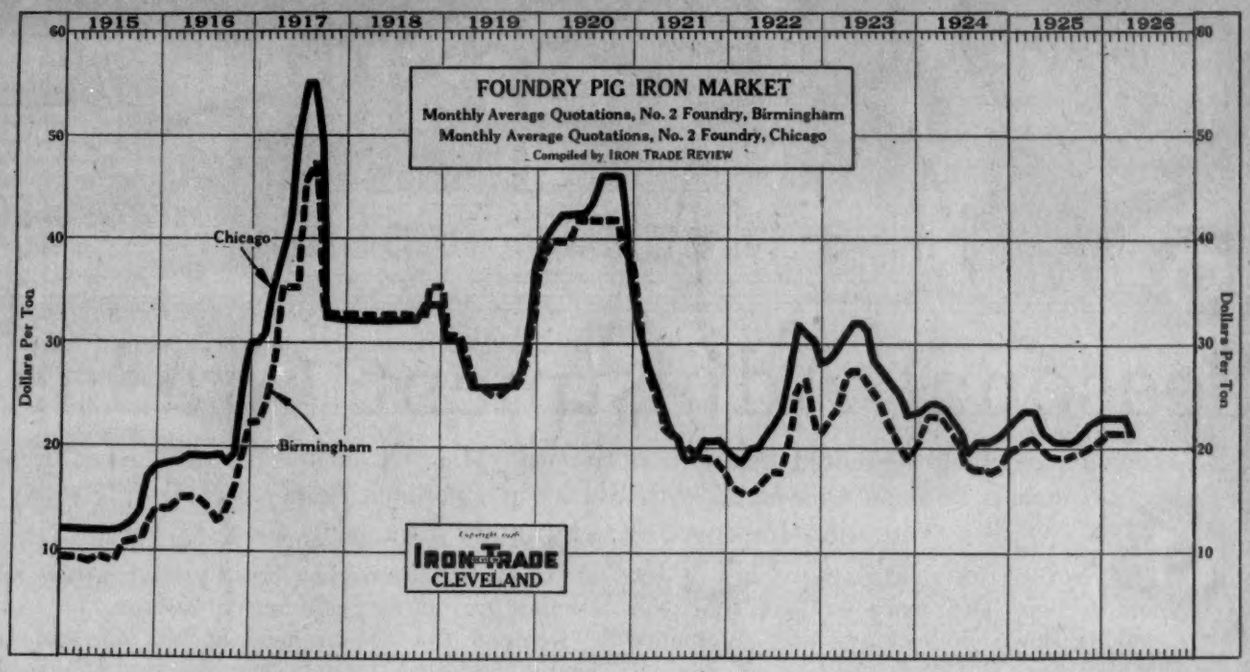
FINISHED steel prices have held firm during the recent period of great production in the iron and steel industry. Steel bars have maintained a level of $40 a ton in recent months and in April the average did not vary. The same steadiness has not prevailed in pig iron. The price of basic valley pig iron held at $20 a ton in March but a few weeks ago it dropped sharply to $18.50 a ton. Pig iron one year ago at this time was quoted at $22.20 a ton. Steel bars then were quoted at $41 a ton.

Independent Sheets

DURING March the sales of sheets reported by the independent makers increased, while production declined. Sales were 89.8 per cent of capacity of the reporting mills compared with 61 per cent of capacity in February and 74.8 per cent in January. Production was at 94.2 per cent of capacity compared with 100.9 per cent in February and 104 per cent in January. Unfilled tonnage as of April 1, was at 157.9 per cent of capacity against 176 one month before.



The Business Trend

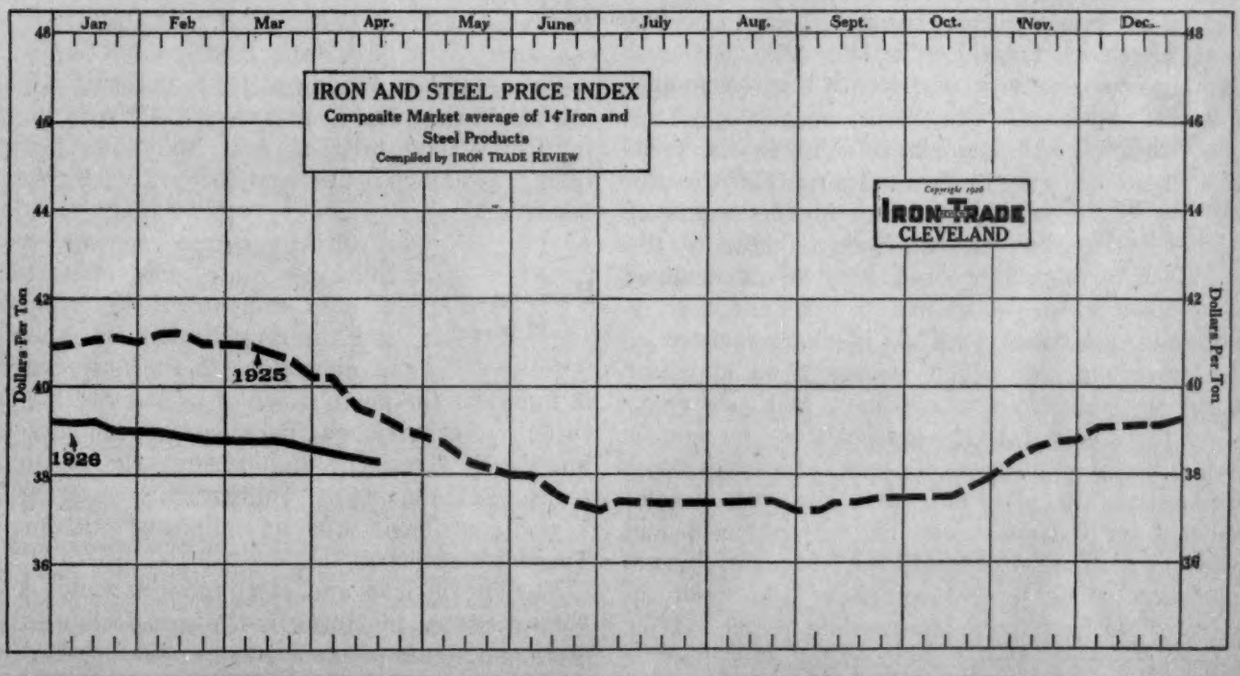


Foundry Pig Iron

THE price of No. 2. foundry pig iron, Chicago during April averaged about $22. This compared with an average of $23 a ton during the three months before. Southern No. 2, Biringham, has not shared with Chicago iron in the recession. This market has been holding firm and during April the average was at $22 a ton compared with $22 a ton in March. In January No. 2, foundry Birmingham was quoted at $22.75 a ton and one year ago it was quoted at $20 a ton.

Steel Prices

IRON TRADE REVIEW's composite market average of 14 leading iron and steel products has been steadily receding in recent months. Last week the index stood at $38.47 a ton against $38.53 a ton one week before, and $39.26 at the beginning of the year. One year ago the price was $39.45 a ton. Weakness in pig iron has been the most important factor in causing the price index to recede recently. Iron and steel prices on the average are now 46 per cent over 1913.



Seasonal Adjustment Gradual

Letdown from Unprecedented Peaks of Activity in March Continues with Market in Strong Position Compared with Status in Previous Years—Export Situation Improves—Steel Inquiry Promising

AS THE end of the month approaches, it becomes more and more evident that the slowing down in bookings and shipments from the high peak in March has been so gradual that figures for April will not show as marked a decline as in many previous years. Statements made by the heads of several of the largest producers within the past 10 days indicate an approximate drop in April from March of 10 per cent in rate of operations, 20 per cent in bookings and less than 10 per cent in shipments. In spite of the seasonal factor in the situation, which is more pronounced now than it was last year, April business is far ahead of what it was in 1925.

Thus far, the curtailment of operations experienced by a few automobile manufacturers shows no signs of spreading. The largest builder has increased the weekly output to nearly 29,000 as against 23,000 cars several weeks ago. Production on several low-priced gear shift cars also has been increased, largely offsetting the continued below normal activity of three other automobile builders.

Steel Demand Shifting

An important factor in the present market situation is the absence of stocks in the hands of buyers, which contributes to the shifting of activity in various lines of finished steel yet assures a constant flow of moderate purchasing. This is characteristic of the plate market, which swings from apparent increasing activity to sluggishness and back again every few weeks. At the present time the market is buoyed by numerous oil tank, ship and barge prospects. The price situation, however, is complicated by business done on old contracts and by some shading of the official 1.90c, Pittsburgh, quotation. The largest award of the week involves 3800 tons for a Morgan line vessel. After a lull of several weeks, demand for steel bars is picking up. Railroad car and automobile builders are not in the market heavily, but other consumers are taking their normal quotas.

Demand for sheets has tapered off and the leading interest now is operating at 65 to 70 per cent and the valley independents at 85 per cent of capacity. Varying prices prevail, the bulk of black sheets going at 3.25c to 3.35c, galvanized at 4.50c to 4.60c, and blue annealed at 2.40c to 2.50c. Full finished auto sheets have settled to 4.30c.

Shape Inquiry Is Heavy

While local conditions are interfering with building projects in several centers, the shape market as a whole is strong. Inquiries continue to appear in good volume, but awards this week total only 19,865 tons, as compared with 24,455 tons last week. A contract involving 8000 tons for the Pennsylvania hotel, Pittsburgh, has been awarded. The concrete bar market is active, 12,385 tons being awarded, as compared with 6870 tons reported last week.

The secondary buying of track material is gaining strength. The Chesapeake & Ohio is inquiring for 30,000 tons of rails and 4500 tons of track fastenings. Car and locomotive buying is inactive.

Earnings Are Higher

A fitting climax to the many favorable statements of earnings of steel companies, which emphasize the record-breaking character of operations in the first quarter, is found in the current report of the Steel corporation. Net earnings for the three months ending March 31 are the highest since the first quarter in 1924. Placing of common stock on a regular 7 per cent basis was a significant outcome of Tuesday's meeting.

Figures on iron and steel foreign trade of the United States in March indicate a decline in imports and a gain in exports as compared with those of February. Exports in the first quarter totaled

501,210 gross tons as against 399,424 tons in the first three months of 1925. Imports in the first quarter of 1926 amounted to 272,387 gross tons, a slight increase over the 261,573 tons brought in in the corresponding period in 1925. Of interest to exporters is the statement made by James A. Farrell at Charleston to the effect that the world's export trade now is only 2 per cent under the pre-war volume.

IRON TRADE REVIEW composite of fourteen leading iron and steel products stands at $38.39, a slight decline from $38.47 last week. The composite has dropped gradually from $39.26, the level it held at the beginning of the year.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Apr. 28, 1926	Mar., 1926	Jan., 1926	Apr., 1925
PIG IRON				
Bessemer, valley, del., Pittsburgh	$21.26	22.76	22.76	22.86
Basic, valley	18.50	20.00	20.00	22.20
Basic, eastern del., eastern Pa.	21.75	22.20	22.75	22.60
*No. 2 foundry, del., Pittsburgh	20.76	22.26	22.26	21.96
No. 2 foundry, Chicago	22.00	23.00	23.00	22.60
*Southern, No. 2, Birmingham	22.00	22.00	22.75	20.00
*Southern Ohio, No. 2 Ironton	20.00	21.00	21.40	21.00
**No. 2X, Virginia furnace	23.25	23.25	23.50	23.75
**No. 2X, eastern del. Phila	23.26	23.26	24.26	23.16
Malleable, valley	19.00	20.50	20.50	20.30
Malleable, Chicago	22.00	23.00	23.00	22.60
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del., Pittsburgh	20.26	21.76	21.76	21.66
Ferromanganese, del., Pittsburgh	92.79	104.79	119.79	119.79
*.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	3.00	3.15	6.90	3.10
Connellsville, foundry, ovens	4.00	4.45	6.40	3.85
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.00	36.50	37.00
Sheet bars, open-hearth, Pittsburgh	36.00	36.00	36.50	37.00
Billets, open-hearth, Pittsburgh	35.00	35.00	35.50	35.80
Wire rods, Pittsburgh	45.00	45.00	45.00	48.00
FINISHED MATERIAL				
Steel bars Pittsburgh	2.00	2.00	2.00	2.05
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, Philadelphia	2.32	2.32	2.32	2.32
Iron bars, Philadelphia	2.22	2.22	2.22	2.27
Iron bars, Chicago, mill	2.00	2.00	2.00	2.10
Beams, Pittsburgh	1.90	1.90	1.90	2.05
Beams, Philadelphia	2.22	2.17	2.17	2.32
Beams, Chicago	2.10	2.10	2.10	2.25
Tank plates, Pittsburgh	1.85	1.85	1.90	2.00
Tank plates, Philadelphia	2.22	2.12	2.12	2.32
Tank plates, Chicago	2.10	2.10	2.10	2.25
Sheets, black, No. 28, Pittsburgh	3.25	3.25	3.35	3.35
Sheets, blue anl., No. 10, Pittsburgh	2.50	2.50	2.50	2.55
Sheets, galvanized, No. 28, Pittsburgh	4.60	4.60	4.60	4.50
Sheets, black, No. 28, Chicago	3.50	3.50	3.50	3.65
Sheets, blue anl. No. 10, Chicago	2.65	2.65	2.65	2.75
Sheets, galvanized, No. 28, Chicago	4.75	4.75	4.75	4.75
Wire nails, Pittsburgh	2.65	2.65	2.65	2.80
Wire nails, Chicago	2.70	2.70	2.70	2.90
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	16.50	17.70	18.75	17.00
Heavy melting steel, eastern Pa.	15.50	16.20	17.35	15.50
Heavy melting steel, Chicago	13.00	14.00	14.95	15.00
No. 1 wrought, eastern Pa.	17.75	18.00	18.35	18.40
No. 1 wrought, Chicago	13.75	14.50	15.00	14.60
Rails for rolling, Chicago	16.00	16.50	17.55	15.85

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (April 28, 1926)	$38.39
Last week (April 21, 1926)	38.47
One month ago (March, 1926)	38.88
Three months ago (January, 1926)	38.90
One year ago (April, 1925)	39.45
Ten years ago (April, 1916)	39.13
Thirteen years ago (April, 1913)	27.74

Late News Flashes

Eastern Pig Iron Rate Hearing Postponed

Washington, April 27.—Hearing on the revision of pig iron rates from Troy, N. Y. and Boston furnaces to New England points by the interstate commerce commission has been postponed until the second week in May.

Suspends Illinois Freight Rates

Washington, April 27.—In the face of protests by iron and steel shippers of Chicago Heights, Ill., and other points including Muscatine and Burlington, Iowa, the interstate commerce commission has suspended until Aug. 23 the iron and steel rates published by the Illinois Freight association railroads based on the mileage scale outlined in the Jones & Laughlin decision some months ago.

Navy Awards Cruiser Steel Tonnage

Washington, April 27. — Navy department opened bids today for 19,900 tons of special treatment steel for a light cruiser to be built in the Brooklyn navy yard. Carnegie Steel Co. was the only bidder at 12.84c per pound, Brooklyn. Announcement was made also that Carnegie Steel Co. was awarded 1200 tons of hull shapes for the same cruiser at 2.40c, base Brooklyn, and that 2700 tons of hull plates will be distributed between Worth Steel Co., Carnegie Steel Co. and Alan Wood Iron & Steel Co. at 2.34c, Brooklyn.

March Was Bethlehem's Best Month

New York, April 27.—March was the best month in the history of the Bethlehem Steel Corp. from the standpoint of plant operation, said E. G. Grace, president, in a recent statement. Operations averaged 87.2 per cent of capacity during the first quarter, compared with 77 per cent the previous quarter, and 77.5 per cent the first quarter of 1925. Current operations are about 85 per cent. The output of ingots in March was 610,775 tons or 94.6 per cent of capacity. New business in April has been at 77 per cent.

H. W. Haggerty Resigns From McKinney Steel Co.

Cleveland, April 27.—Harry W. Haggerty, vice president in charge of sales of the McKinney Steel Co., Cleveland, has resigned. Mr. Haggerty has been identified with the company many years, and his appointment as general manager of sales of the Corrigan-McKinney Steel Co., predecessor of the present company, was made in September, 1917. In subsequent reorganizations of the company he was appointed a vice president, and was in general charge of the company's sales of steel, pig iron and other products.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	40.30 to 41.30
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30 to 46.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00

SLABS

Pittsburgh	$35.00
Youngstown	35.00

WIRE RODS

Pittsburgh	$45.00
Cleveland	45.00
Chicago	46.00

Standard extras, $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.12c to 2.32c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.85c to 1.90c
Philadelphia	2.22c
New York	2.24c
Chicago	2.10c
Cleveland	2.09c
Birmingham	2.00c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c
Pittsburgh, cold finishing	2.15c
Pittsburgh, forging quality	2.15c
Philadelphia, soft steel	2.22c to 2.32c
New York, soft steel	2.24c to 2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.29c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c
Mill rail steel	1.85c to 1.95c
Philadelphia, common iron	2.22c
New York, common iron	2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	3.75c to 3.90c
Worcester, Mass	4.05c to 4.15c
Chicago	4.20c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled Pittsburgh, Chicago carloads	2.50c
Less carload	2.75c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—	
2300 (3½ per cent nickel)	4.50c
3100 (Nickel chromium)	3.50c
6100 (Chrome vanadium)	4.30c
6100 (Chrome vanad. spring)	3.85c
9250 (Silico-mang. spring)	3.25c to 3.40c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	23.00 to 25.00
Light rails, 25 to 45 mill g.t.	34.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	2.90c to 3.00c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Ties plates, Pittsburgh	2.25c to 2.35c
Tie plates, Chicago	2.25c to 2.35c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base	
Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 pound kegs, subject to card of extras Feb. 1, 1926 over regular wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh, base	3.25c to 3.35c
No. 28, Philadelphia, delivered	3.57c to 3.67c
No. 28, Gary, Indiana Harbor	3.35c to 3.45c
No. 28, Chicago, delivered	3.40c to 3.50c

TIN MILL, BLACK

No. 28, Pittsburgh	3.25c to 3.35c
No. 28, Gary base	3.45c

GALVANIZED

No. 28, Pittsburgh, base	4.50c to 4.60c
No. 28, Philadelphia, delivered	4.82c to 4.92c
No. 28, Gary, Indiana Harbor	4.60c to 4.70c
No. 28, Chicago, delivered	4.65c to 4.75c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.40c to 2.50c
No. 10, Philadelphia, delivered	2.72c to 2.82c
No. 10, Gary, Indiana Harbor	2.60c
No. 10, Chicago, delivered	2.65c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.30c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, base	4.85

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	68½
Charcoal iron, 3¼ to 4½-inch	6
Seamless hot rolled, 3¼ to 8½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton
Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch to 24-inch, Chicago	49.20 to 50.20
Over 24-inch, Chicago	46.20
Four-inch, Birmingham	44.00 to 45.00
Six-inch and over, Birmingham	40.00 to 41.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60

Standard fittings, Birmingham base $110.00, 6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank ..... $4.00 off list

Hot pressed hexagon tapped or blank ..... $4.40 off list

Cold punched square or hexagon blank ..... $4.10 off list

Cold punched square or hexagon tapped or blank ..... $4.10 off list

Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger ..... 75, 10 and 5 off

Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller ..... 80, 10 and 5 off

Cold finished S. A. E. semifinished ⅝-inch and larger ..... 75, 10, 10 and 5 off

Cold finished S. A. E. semifinished 9/16-inch and smaller 80, 10, 10 and 5 off

CARRIAGE BOLTS
(⅜ x 6-inch, smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off

Eagle carriage bolts (Eagle list) ..... 65 and 10 off

MACHINE BOLTS
(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off

Plow bolts Nos. 3 and 7 heads ..... 50 and 10 off

All other standard heads ..... 50 and 10 off plus 20 per cent

Tap bolts ..... 30 off

Bolt ends with hot pressed nuts ..... 50, 10 and 10 off

Bolt ends with cold punched nuts ..... 45, 10 and 5 off

Blank bolts ..... 50, 10 and 10 off

Rough stud bolts with nuts (250 pieces or more of a size) 40 and 10 off

Stove bolts, 80, 10 and 5 off plus 2½ off in bulk.

Tire bolts ..... 60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	28.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.75c
**Rivets, 7/16-inch and smaller, Pittsburgh Cleveland	70 and 10 to 70 and 5 off
**Rivets, 7/16-inch and smaller Chicago	70 and 10 to 70 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.30 to 6.40 off
Wrought c.l., Pitts dist	6.50 to 6.55 off
Lock Washers, f.o.b. factory	35 off

Pig Iron

Demand Tapers Off—Many Users Buying Only for Few Days Ahead—Melt Is Diminishing—Prices Are Steady

THE tonnage of pig iron reported sold during the past week in the aggregate probably was lower than in any period since the recent reduction in prices. Demand has tapered off steadily, and some furnace interests ascribe this to a slower rate of consumption as well as the desire on the part of buyers to obtain lower quotations. Some valley steelworks interests are understood to favor an increase of 50 cents to re-establish "morale" among consumers, but others prefer to wait actual demand. The feature of the market is the large number of small sales for prompt delivery; users are buying exceptionally close, in many instances for a few days ahead only. Prices are steady in all districts. A few inquiries for sizable lots of basic are pending.

PITTSBURGH, April 27.—Pig iron buyers continue reluctant to close. A growing opinion in the trade is to the effect that with consumption dwindling, melters find they already have iron in stock or coming in on contracts in excess of requirements. Some steel interests strongly favor advancing prices at least 50 cents a ton on pig iron for general effect such action would have on the morale of buyers. The point to the comparatively strong markets at Buffalo, Detroit and several eastern sections. Other sellers see nothing to be gained by forcing the situation. They believe the best policy is to await actual demand. Prices are the same as a week ago. The Standard Sanitary Mfg. Co. closed for a few thousand tons of foundry iron for Baltimore with a nearby steelworks. It is also reported to be buying some foreign iron. Nearby foundry, malleable and bessemer iron users are satifying their prompt needs with purchases of 50 or 100 tons at a time. The Follansbee Bros. Co., and the Allegheny Steel Co. are expected to close with regular sources of supply for basic.

Boston, April 27.—Some distress foreign iron has been thrown on the market at Providence and Boston at prices from 50 cents to $1 below the quoted market. Generally prices are firm and sales of eastern Pennsylvania iron are reported at $22 50, furnace for the No. 2X grade (2 25 to 2.75 silicon). The Sullivan Machine Co., Claremont, N. H., closed on its inquiry for 300 tons.

New York, April 27.—Sales of pig iron in this territory during the past week aggregated around 8000 tons. Generally, however, new demand is tapering off and the amount of inquiry now before the trade is small. There continues a certain amount of expectancy among consumers that prices will go lower. So far there has been no deviation from $22, base eastern Pennsylvania furnace, and $21, base, Buffalo, on foundry iron. Small tonnages of foreign iron continue to be offered in distress as low as $19.75, duty paid tidewater. It is unusual, however, for standard European foundry iron to be offered at less than $20.50, duty paid tidewater. Dutch iron continues to be held at $22 and Indian at $21.50, duty paid base.

Philadelphia, April 27.—New pig iron buying is small and limited to prompt lots, but the melt appears nearly as large as in March. Consumers expect lower prices. Eastern Pennsylvania foundry iron is unchanged at $22, base furnace. Distress lots of European foundry iron are offered at $19.75 to $20.50, duty paid, tidewater.

Buffalo, April 27.—New inquiry for pig iron is estimated at less than 5000 tons. Large consumers have withdrawn from the market after covering only urgent needs. Makers here are refusing to shade $21, base. One consumer is reported to be seeking prices on 5000 tons.

Cleveland, April 26.—The pig iron market is moderately active, on small tonnages. One of the leading merchant interests made 18 separate sales in the past week, each averaging slightly less than 100 tons. Others report numerous sales, in carload lots. The aggregate for the week was considerably under the week preceding; the market lacks life, and hand-to-mouth buying is the general rule. One user purchased 100 tons in the beginning of the week; a few days later ordered 50 tons more, and wound up the week with another purchase of 50 tons. The melt in this district, and in the Michigan automobile territory is diminishing; whether it is of a temporary character furnace interests have been unable to determine, but it is evident to them that other factors are retarding the buying movement than the mere expectation of lower prices. Prices are steady at recent levels. Some report was heard of Buffalo iron being offered at $20.50, or 50 cents less than a week ago, but numerous known sales at $21, base, furnace, appear to disprove it. The market in Cleveland is dull. Sellers here continue to quote $20, base, furnace for delivery in the 50-cent switching area. Inquiries are of a small, routine character; one of the largest is for 500 tons of foundry iron for a Kokomo, Ind., foundry. A Lima, O., foundry was in the market for 1000 tons of basic but purchased less than this amount, it is reported, from a central Ohio furnace. A Canton, O., steelmaker is inquiring for 1000 tons of special analysis iron.

Cincinnati, April 27.—Bookings by pig iron producers and sellers in this district the past week established a new low record. The total sales did not aggregate 2000 tons and were divided into small lots. The Lunkenheimer Co., Cincinnati, wants 400 tons of northern iron for May and June shipment. Northern iron is quoted at $20 Ironton. Furnace interests, who a week ago were asking $20.50 have

(*Concluded on Page* 1146)

Pig Iron Prices

Prices per gross ton

Bessemer, valley	19.50
Bessemer, Pittsburgh	21.26
Basic, valley	18.50
Basic, Pittsburgh	20.26
Basic, Buffalo	20.00 to 20.50
Basic, del., eastern Pa.	21.76 to 22.26
Malleable, valley	19.00
Malleable, Pittsburgh	20.76
Malleable, del., Cleveland	20.50
Malleable, Chicago	22.00
Malleable, Buffalo	21.00
Malleable, del., eastern Pa.	23.25 to 23.50
No. IX, eastern del., Phila.	23.26 to 24.39
No. 1X, Buffalo	22.50
No. 1 foundry, Chicago	22.50
No. 2 foundry, valley	19.00
No. 2 foundry, Pittsburgh	20.76
No. 2 foundry, Buffalo	21.00
No. 2 foundry, Chicago	22.00
No. 2 foundry, Granite City	22.50 to 23.00
No. 2 foundry, Ironton furnace	20.00
No. 2 foundry, del., Cleveland	20.50
No. 2 foundry, del., Phila.	22.76
No. 2 foundry, N. J., tidewater	23.39
No. 2X, eastern del., Phila.	23.26
No. 2X, east. N. J., tidewater	23.89
No. 2X, foundry, Buffalo, furnace	21.50
No. 2X, eastern del., Boston	25.65 to 26.65
No. 2X, Buffalo, del., Boston	26.41 to 26.91
Continental foundry f.o.b. Boston	20.50 to 21.50
India, 2.25 to 2.75 silicon, delivered cars, Boston	21.00 to 22.00
No. 2 Alabama, Birmingham	22.00
No. 2 Alabama, Cincinnati	25.69
No. 2 Tenn., Birmingham	21.00
No. 2 Tenn., Cincinnati	24.69
No. 2 southern, Philadelphia	27.01 to 28.01
No. 2 southern, Chicago	28.01
No. 2 southern, Chicago (barge and rail)	26.18
No. 2 southern, Boston (rail and water)	27.91 to 28.91
No. 2 southern, Cleveland	27.01 to 28.01
No. 2 Southern, St. Louis	25.42 to 26.42
No. 2X, Virginia, furnace	23.00 to 23.25
No. 2X, Virginia, Phila.	28.17 to 28.42
No. 2X, Virginia, Jersey City	28.54 to 28.79
No. 2X, Virginia, Boston	28.92 to 29.17
Gray forge, eastern Pa.	21.75 to 22.25
Gray forge, val. del. Pitts.	20.26
Low phos., standard, valley	27.50 to 28.50
Low phos., standard, Phila.	24.76 to 27.79
Low phos., Lebanon, furnace	23.00 to 24.00
*Low phos., English	24.26 to 24.76
Charcoal, Birmingham	30.00 to 31.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $24.50; 6 per cent $25.50; 7 per cent $26.50; 8 per cent $27.50; 9 per cent $29.00; 10 per cent $31.00; 11 per cent $33.00; 12 per cent $35.00; 13 per cent $37.00; and 14 per cent $39.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $33.00; 11 per cent $35.00; 12 per cent $37.00; 13 per cent $39.00; 14 per cent $41.00; 15 per cent $44.00; 16 per cent $46.00; 17 per cent $48.50.

*Duty paid, delivered Philadelphia consumers.

Coke

Market for Furnace Fuel Is Dull—Foundry Demand Slightly Improved—Prices Steady

FURNACE coke demand continues of small proportions, and the beehive market is reported as lifeless. Requirements have been filled for May, and it is expected that several furnaces will be blown out by May 30 unless pig iron demand improves. Spot sales at $3 to $3.25 are noted. Demand for foundry fuel has improved slightly. Prices are steady.

Pittsburgh, April 27.—Spot transactions, rarely involving more than 500 tons at a time occasionally interrupt an otherwise lifeless beehive coke market. No blast furnaces now are inquiring; even those purchasing spot tonnages lately have filled their requirements, for May at least. The trade expects several blast furnaces to go out by May 30 unless the pig iron market improves. Carload sales yesterday brought $3.10. Other spot sales are noted at $3, minimum. Several interests claim inability to obtain more than that figure. However, occasional sales are noted by others involving single carloads at $3.25, maximum. Medium sulphur coke is selling at $2.50 and $2.75 for machine and hand-drawn, respectively. Foundry coke demand is slightly improved, though it is not extensive. Prices of $4 to $4.75 represent the full range in spot sales to consumers. Premium brands are higher.

Production of coke in the Connellsville region for the week ended April 17 was 175,500 tons, as against 179,730 tons the preceding week, according to the *Connellsville Courier*.

Boston, April 27.—Demand for foundry coke has rallied and shipments are now at normal level. The price of by-product coke is unchanged at $12.50, delivered.

New York, April 27.—Further contracting for second half has featured the foundry coke market here. One large producer in the Connellsville territory has renewed fully 75 per cent of his contracts at $5.50, Connellsville. Otherwise the coke market is dull. Spot beehive foundry coke continues to range from $4.25 to $5.50, Connellsville, depending on the brand. The market on by-product foundry coke continues to range from $9.59 to $10.77, delivered at Newark and other northern New Jersey consuming points, depending on the freight.

Philadelphia, April 27.—A large percentage of foundry coke contracts have been renewed for second half at $5.25 to $5.50, Connellsville.

Birmingham, Ala., April 26.—Coke quotations are slightly weaker. Several contracts are in hand which will warrant steady production for some time.

Coke Prices

Beehive, Ovens

Prices per net ton

Connellsville furnace	$ 3.00 to 3.25
Connellsville foundry	4.00 to 4.50
New River foundry	6.50 to 7.00
New River furnace	4.50 to 5.00
Wise county furnace	3.25 to 3.50
Wise county foundry	4.25 to 5.50
Alabama foundry	5.00 to 5.50
Alabama furnace	5.00 to 5.25

By-Product

Foundry, Newark, N. J.; del.	$ 9.59 to 10.75
Foundry, Chicago, ovens	9.75
Foundry, New England, del.	12.50
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	5.00 to 5.50
Foundry, Indianapolis, del.	10.75

Wage Increases Sought in Sheet and Tin Mills

Pittsburgh, April 27.—Endeavoring to fit wage scales to new working conditions in the sheet and tin mills, the Amalgamated Association of Iron, Steel & Tin Workers just before adjourning its recent annual convention endorsed the report of the special committee on the three-part system and the mechanical doubler. Under this general system the roller, rougher and pair heater shall receive 5 per cent increase in wages; the heater and heater's helper 15 per cent increase; and the mechanical operator 30 per cent increase.

The table of divisions of pay of the crew members, indicated in the proposed scale figures out a total, per unit of 1000 pounds, of 4.115 on 21-24 gages; against a total of 3.392 on 21-22 gages and 3.3932 on 23-24 gages in the old 1922-23 scale book.

In the general sheet and jobbing mill scale, the figure 1½ per cent is replaced in the second line of the preamble and 2 per cent is inserted. when the scale slides upward. On the descending side, the descent is made by the same gradations but the minimum of $2.15 is proposed instead of the present $1.80. Various wage advances are asked, ranging from 10 per cent on some grades of sheets upward to 20 per cent for working electrical steel sheets, high-silicon sheets, etc.

The tin mill scale is made to conform to the sheet and jobbing mill scale with the minimum base of $2.15 on the declining side. In preambles to both scales the word "plain" is deleted where it appears in the description of the representative 26, 27 and 28 gage sheets upon which the minimum base of $2.15 is asked. On the loose-rolling double mill scale, a wage advance of 10 per cent is asked on all roughing mills, together with adjustment of various technical details.

The horseshoe committee submitted a resolution, that was adopted, asking for "a 25 per cent increase in general."

Ferroalloys

Market Is Quiet—Shipments Fairly Large—Prices Nominal

Pittsburgh, April 27.—Activity in ferroalloys is limited to specifications. Consumption is progressing favorably among the steel mills, etc., particularly as regards ferromanganese, and shipments are fairly large against contracts. Prices are nominal, one maker quoting $88 Atlantic seaboard base; E. J. Lavino & Co., and the Bethlehem Steel Corp. maintaining a $95 base figure, but shipping against $90 contracts. English material is quoted at $110, c.i.f. Atlantic seaboard. Some low-grade ferrosilicon is occasionally bought, mostly in single carload lots, but the full market prices are obtained. One seller is averaging two or three carloads weekly. Spiegeleisen is unchanged, as to demand and price.

New York, April 27.—Shipments of spiegeleisen on contracts continue to go forward at a heavy rate. The supply of the 19 to 21 per cent grade is scarce for spot shipment. However, there is a fair amount of the 16 to 19 per cent grade obtainable. The former grade is quoted at $33 to $34, furnace and the latter $32. Very little business yet has been placed on producer books for shipment after June 30.

Special ferroalloys are steady and users are taken care of on contracts so that there is no spot business. Tungsten ore, especially wolframite, continues weak, as users appear covered, so that some offerings go begging at cut prices. The market is around $11 a short ton unit, some prices a little less and some ore is held much higher.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resales	$88.00 to 110.00
Ferromanganese delivered Pittsburgh	92.79 to 114.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	33.00 to 34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, per pound contained	1.09 to 1.17
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.00 to 11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 4.00
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent materials)	122.50

†Duty paid.

Plates

More Tonnage Booked at 1.85c —Inquiries for Tanks Predominate—Demand for Plates Better

PLATE prices are unsettled, and in some districts a larger proportion of the business booked is at 1.85c. Some sellers in eastern territory continue to quote 1.80c, while in the Pittsburgh district mills are holding firmly to 1.90c. Inquiries for tanks are more numerous. A decided improvement in demand for sheared plates is noted at Chicago.

PLATE PRICES, PAGE 1132

Chicago, April 27.—Plate activity is noteworthy considering the lack of freight car buying. Increasing activity in the California and southwestern oil fields is largely responsible. Bids on the 23,000 or more tons to be required for the Roxana Petroleum Corp. refinery and tank farm project at East Chicago, Ind., will be in by the end of this week; at least one large fabricating interest is competing with tank builders for this job. Oil tankage booked by the leading interest last week totaled 4800 tons. The leading independent notes decided improvement in demand for sheared plates. In plates as in shapes specifications do not quite equal shipments at this time. The official price of plates is 2.10c, Chicago, but it lacks strength.

Boston, April 27.—The Boston & Maine and the Boston & Albany railroads have let contracts for miscellaneous tonnage for bridge work, and sales generally have improved during the week. The price is firm at 1.90c, Pittsburgh.

Philadelphia, April 27.—Eastern plate mills continue to book sufficient business to maintain production around 75 per cent. The price on new business is 1.90c Pittsburgh.

Pittsburgh, April 27.—Buyers of plates in this territory have not succeeded in developing quotations below 1.90c. Some prices originating in eastern sections are as low as 1.80c, particularly in northwestern Pennsylvania. General buying is of small proportions. One or two large inquiries are out, including one from the West for tanks.

Youngstown, April 27.—Platemakers are quoting 1.90c, Pittsburgh, on all inquiries. A good volume of business is on file but most of this is of a special character.

Cleveland, April 27.—Run of market business in plates continues to move at 1.90c, Pittsburgh or 2.09c, Cleveland and the mills generally report they are not quoting below this figure. Renewed talk of 1.80c being available on large and very attractive tonnages are attributed to old protections, at least so far as one lot of 1000 tons is concerned but the market in this territory has been manifesting some other signs of less firmness. One mill in particular has been mentioned. The volume of current business shows no especial change and is not heavy. Some new tonnage for refinery stills is coming up. A recapitulation of the situation on new work with lake yards shows five vessels in some stage of activity including two ore freighters for the Pittsburgh Steamship Co., two for another ore interest and one boat of a special unloading type.

CONTRACTS PLACED

3800 tons, Morgan Line vessel to be built by Federal Shipbuilding Co., to Carnegie Steel Co.
1200 tons, tank work for the Standard Oil Co. of Louisiana at Baton Rouge, La., to the Chicago Bridge & Iron Works.
500 tons, miscellaneous plate work, including 300 tons for one 55,000-barrel tank and two smaller tanks for the United States navy, Pensacola, Fla., to the Pittsburgh-Des Moines Steel Co.
270 tons, plates and shapes, barge for Associated Oil Co., Los Angeles, to Los Angeles Shipbuilding & Drydock Co.

CONTRACTS PENDING

3500 to 5000 tons, as noted April 15, 20 to 30 barges for the Weirton Steel Co. Purchase of barges may be made by an independent shipping interest which will operate them for the Weirton company.
3400 tons, two vessels for the Red D line; pending.
10,000 tons, approximate, for 50 to 75 tanks for California oil fields; bids being compiled.
1000 tons, pipe line, La Mesa, Calif.; bids in May 10.
125 tons, pipe line, Thermalito Irrigation district, Oroville, Calif.; Western Pipe & Steel Co. low bidder.
400 tons, pipe line, Roseville, Calif.; bids being received.

Alloy Prices Easier

Cleveland, April 27.—Business is lighter in the alloy steel market, with the bulk of tonnage moving at $2 under the former market. On hot-rolled alloy steel, 3½ per cent nickel, S. A. E. series 2300, 4.50c Pittsburgh represents the market, although 4.60c still is quoted by some interests. On S. A. E. series 3100, 3.50c is quoted, while on series 6100, chrome vanadium, 4.30c is the common market. Demand in this territory is dull, less activity being shown than in the weeks preceding.

Semifinished

Specifications and Orders Light—More Inquiries Pending—Prices Steady

SPECIFICATIONS on contracts for semifinished material are light, and new orders during the week were restricted mainly to small lots of 4 x 4-inch rerolling billets, on which $35, Pittsburgh, applied. An inquiry is current for 3000 tons of small billets and 3000 to 5000 tons of tin bars. Small billets and sheet bars are firm at $36.

SEMIFINISHED STEEL PRICES, PAGE 1132

Pittsburgh, April 27.—Several small lots of 4 x 4-inch rerolling billets were booked in the past week at the full $35 market figure. Some forging billet business was done at the $40 base price and an inquiry was received for 3000 tons of 1¼-inch rerolling billets on which $36 was quoted. An inquiry now is being worked upon involving 3000 to 5000 tons of tin bars. These and a few other inquiries for billets and slabs which are commencing to come out furnish a fair measure of activity in the semifinished steel market. One or two sales of skelp recently have been noted at 1.90c and a few wire rod contracts have been booked at $45. Many conversion mills overbought for the first quarter. Considerable inquiry is expected to come out within the next week for shipment during those two months.

Philadelphia, April 27.—Several hundred tons of billets were sold in the past week at unchanged prices, although extras were shaded in one case.

Youngstown, O., April 27.—No new demand for any grade of semifinished material is before makers. Sheet bar specifications are placed against contracts but the tonnage is indicative of close buying. Sheet bars and small billets are firm at $36, Youngstown, and standard slabs and billets at $35, Youngstown.

Cleveland, April 27.—Some improvement in specifications for sheets bars is reported by mill interests here. The market continues quotable at $36, Youngstown, on sheet bars and small billets, and $35 for standard billets and slabs.

Chicago, April 27.—Semifinished material has been unusually active here the past 60 days. Sales of the past week include 5000 tons of small billets and 3000 tons of sheet bars. Small billets are quoted at $35, base, Chicago, and sheet bars at $36.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	13.00 to 13.50
Boston (dealers)	10.50 to 11.00
Buffalo	15.50 to 16.00
Buffalo, No. 1	16.25 to 16.75
Chicago	12.75 to 13.00
Cincinnati (dealers)	12.00 to 12.50
Cleveland, No. 1	13.75 to 14.25
Cleveland, No. 2	12.75 to 13.25
Detroit	13.00 to 13.50
Eastern Pennsylvania	15.00 to 16.00
Bethlehem delivery	14.50 to 15.00
New York (dealers)	10.50 to 11.00
Pittsburgh	16.00 to 16.50
St. Louis	12.50 to 13.00
Valleys, No. 1	16.00 to 16.25
Valleys, No. 2	14.75 to 15.00

COMPRESSED SHEETS

Buffalo	14.75 to 15.25
Chicago	11.00 to 11.50
Cleveland	13.00 to 13.50
Detroit	11.25 to 11.75
Pittsburgh	14.50 to 15.00
Valleys	14.50 to 15.00

BUNDLED SHEETS

Buffalo	13.00 to 13.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	11.50 to 12.00
Eastern Pennsylvania	13.00 to 13.50
Pittsburgh	13.50 to 14.00
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE

Chicago	8.00 to 8.50
Cincinnati	7.50 to 8.00
Detroit	6.75 to 7.25

STEEL RAILS, SHORT

Birmingham	14.00 to 15.00
Buffalo	17.00 to 17.50
Chicago	17.00 to 17.50
Cincinnati (dealers)	17.00 to 17.50
Cleveland (over 6 ft.)	15.00 to 16.00
Detroit	16.00 to 16.50
St. Louis	16.50 to 17.00

STOVE PLATE

Birmingham	14.00 to 14.50
Boston (consumers)	13.50 to 14.00
Buffalo	15.00 to 15.50
Chicago	15.00 to 15.50
Cincinnati (dealers) (net)	8.50 to 9.00
Cleveland	13.00 to 13.50
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	10.25 to 10.75
Pittsburgh	13.50 to 14.00
St. Louis	14.00 to 14.50

LOW PHOSPHORUS

Buffalo	18.50 to 19.00
Cincinnati (dealers)	16.50 to 17.00
Eastern Pennsylvania	19.00 to 21.00
Pitts. billet and bloom crops	19.50 to 20.00

SHOVELING STEEL

Chicago	12.50 to 13.00
Pittsburgh	12.50 to 13.00
St. Louis	12.50 to 13.00

KNUCKLES, COUPLERS, SPRINGS

Chicago	16.00 to 16.50
Eastern Pennsylvania	19.00
Pittsburgh	18.00 to 18.50
St. Louis	14.50 to 15.00

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
Eastern Pennsylvania	16.00 to 16.50
St. Louis	14.00 to 14.50

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	15.25 to 15.75
St. Louis	14.00 to 14.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	$12.00 to 13.00
Boston (dealers)	13.00 to 13.50
Buffalo, No. 1	14.00 to 14.50
Buffalo, No. 2	15.50 to 16.00
Chicago, No. 1	13.50 to 14.00
Chicago, No. 2	12.75 to 13.00
Cincinnati, No. 1 (dealers)	9.00 to 9.50
Cleveland, No. 1	13.50 to 14.00
Eastern Pennsylvania	17.50 to 18.00
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	13.00 to 13.50
Pittsburgh, No. 2	16.00 to 16.50
St. Louis, No. 1	12.00 to 12.50
St. Louis, No. 2	12.50 to 13.00

WROUGHT PIPE

Boston (dealers)	11.00 to 11.50
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.00
New York (dealers)	11.50 to 12.00

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	16.50 to 17.00

BUSHELING

Buffalo	14.75 to 15.25
Chicago, No. 1	12.00 to 12.50
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	9.00 to 9.50
Cleveland, No. 1	11.50 to 12.00
Cleveland, No. 2	11.00 to 11.25
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	14.00 to 14.50
St. Louis, No. 1	11.50 to 12.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston (chemical)	8.50 to 9.00
Buffalo	11.00 to 11.50
Chicago	9.00 to 9.50
Cincinnati (dealers)	7.50 to 8.00
Cleveland	10.50 to 11.00
Detroit	9.75 to 10.25
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.25 to 9.75
Pittsburgh	12.00 to 12.50
St. Louis	7.00 to 7.50

CAST IRON BORINGS

Birmingham (chemical)	15.50 to 16.50
Birmingham (plain)	8.00 to 8.50
Boston (chemical)	10.50 to 11.50
Boston (dealers)	8.50 to 9.00
Buffalo	13.00 to 13.50
Chicago	10.50 to 11.00
Cincinnati (dealers)	8.00 to 8.50
Cleveland	11.00 to 11.50
Detroit	9.50 to 10.00
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania (chem.)	15.50 to 16.00
New York (dealers)	9.25 to 9.75
Pittsburgh	12.50 to 13.00
St. Louis	10.50 to 11.00
Valleys	12.50 to 13.00

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.00 to 8.50
Buffalo	12.50 to 13.00
Cincinnati (dealers)	7.50 to 8.00
Cleveland	10.75 to 11.50
Detroit	9.50 to 10.00
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.25 to 9.75
Pittsburgh	12.50 to 13.00

PIPES AND FLUES

Chicago	11.00 to 11.50
Cincinnati (dealers)	8.00 to 8.50
Cleveland	11.00 to 11.50
St. Louis	8.50 to 9.00

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago	14.00 to 14.50
Cleveland	13.50 to 13.75
Eastern Pennsylvania	13.50
New York (dealers)	11.25 to 11.75
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston (dealers)	9.00 to 9.50
Buffalo	13.00 to 13.50
Chicago	9.00 to 9.50
Cleveland (under 10 in.)	11.50 to 12.00
Cleveland (over 10 in.)	11.50 to 12.00
Detroit	9.25 to 9.75
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	9.00 to 9.50
Chicago	17.00 to 17.50
Eastern Pennsylvania	14.00 to 14.50

ARCH BARS AND TRANSOMS

Chicago	20.00 to 20.50
St. Louis	20.50 to 21.00

Iron Steel Works Scrap

AXLE TURNINGS

Boston dealers	$9.50 to 10.00
Buffalo	14.50 to 15.00
Chicago	14.50 to 15.00
Cleveland	13.75 to 14.25
Eastern Pennsylvania	14.50
Pittsburgh	14.00 to 14.50
St. Louis	8.50 to 9.00

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston (shipping point)	18.00 to 18.50
Buffalo	16.50 to 17.00
Chicago	19.00 to 19.50
Cleveland	17.50 to 18.00
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	20.00 to 21.00
St. Louis	19.50 to 20.00

SHAFTING

Boston (shipping point)	17.50 to 18.00
Chicago	19.75 to 20.25
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	17.50 to 18.00
St. Louis	16.00 to 16.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	$16.00 to 16.50
Boston (consumers)	17.00 to 17.50
Buffalo, iron	15.50 to 16.00
Buffalo, steel	16.50 to 17.00
Chicago, iron	16.00 to 16.50
Chicago, steel	17.00 to 17.50
Cincinnati	12.00 to 12.50
Eastern Pennsylvania	18.00 to 18.50
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	17.00 to 17.50
Pittsburgh, steel	18.50 to 19.00
St. Louis, iron	15.50 to 16.00
St. Louis, steel	16.50 to 17.00

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 18.00
Boston	18.00 to 18.50
Buffalo	15.50 to 16.00
Chicago, No. 1 machinery	18.25 to 18.75
Chicago No. 1 railroad or agricultural	17.75 to 18.00
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.00 to 18.50
Cleveland, cupola	17.25 to 17.75
Detroit (net tons)	14.75 to 15.25
Eastern Pennsylvania, cupola	18.00 to 18.50
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	17.00 to 17.50
San Francisco, delivered	20.00 to 21.00
Seattle	17.00
St. Louis, railroad	15.50 to 16.00
St. Louis, agricultural	16.00 to 16.50
St. Louis, machinery	18.00 to 18.50
Valleys	17.50

HEAVY CAST

Boston	17.00 to 17.50
Buffalo (breakable)	14.50 to 15.00
Cleveland	13.00 to 13.25
Detroit (Automobile) (net tons)	19.50 to 20.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	14.00 to 14.50
Pittsburgh	15.00 to 15.50

MALLEABLE

Boston, railroad	19.00 to 19.50
Buffalo	21.00 to 22.00
Chicago, agricultural	15.50 to 16.00
Chicago, railroad	16.50 to 17.00
Cincinnati, railroad (dealers)	15.00 to 15.50
Cincinnati, agricultural (dealers)	14.50 to 15.00
Cleveland, agricultural	18.00 to 18.50
Cleveland, railroad	19.00 to 19.50
Detroit	14.75 to 15.25
Eastern Pennsylvania, railroad	17.00 to 18.00
Pittsburgh, railroad	18.50 to 19.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, railroad	14.75 to 15.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	$15.00 to 16.00
Boston (dealers)	12.50 to 13.00
Buffalo	17.00 to 17.50
Chicago	15.50 to 16.00
Cleveland	17.00 to 17.25
Eastern Pennsylvania	17.00
New York	14.00 to 14.50
Pittsburgh district	18.50 to 19.00
St. Louis	15.00 to 15.50

LOCOMOTIVE TIRES

Chicago, No. 1	17.50 to 18.00
Chicago, cut	17.00 to 17.50
St. Louis, No. 1	16.50 to 17.00

LOW PHOSPHORUS PUNCHINGS

Chicago	16.00 to 16.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	19.50 to 20.00

Scrap

Further Recession in All Grades —Consumers Buy Little and Supply Is Large

PRICES of iron and steel scrap have scarcely halted in their decline and further low levels have been attained. Nothing has appeared to indicate the bottom is reached. Consumers are taking little beside small bargain lots but deliveries on contracts continue to give some outlet for dealer stocks. Buyers revise their offers at each new low level.

Chicago, April 27.—Practically the entire iron and steel scrap list has suffered further reductions. Consumers display no interest in the market except for decided bargains, the melt of scrap is receding slightly and the scrap tonnage available is expanding slightly, as is customary in spring. Nothing yet indicates that bottom has been reached. Heavy melting steel has dropped to a range of $12.75 to $13, with some dealers proposing $12.50 as the bottom of the spread. In some instances quotations are based more on what dealers can buy for than upon sales to melters.

Boston, April 27.—Prices of several grades of scrap iron and steel have dropped about 50 cents a ton but shipments into Pennsylvania have not been increased thereby as Pennsylvania consumers also dropped their offers. Local consumers of steel scrap are for the moment out of the market.

New York, April 27.—Following reductions at Bethlehem, Pa., and Coatesville, Pa., dealers here have marked down prices on yard steel and No. 1 railroad steel. Dealers are now paying $10.50 to $11, New York, on yard steel, and $11.75 to $12.25 for railroad steel. The latter price is about the equivalent of $15, delivered, Bethlehem. Wrought pipe is off 50 cents, dealers offering $11.50 to $12, New York. Consuming demand generally is slack.

Philadelphia, April 27.—Consumers generally have covered current scrap requirements and principal activity is buying by dealers, who are paying lower prices.

Pittsburgh, April 27.—Scrap users continue picking up bargains and refrain absolutely from the purchase of large tonnages. Small lot sales are noted to nearby consuming points, including Midland, Pa. Heavy melting steel has been sold to consumers at $16.50, but some dealers have paid $16. Sheet scrap is weak, as is indicated by the fact that the Westinghouse Electric & Mfg. Co. is reported to have obtained $13.75, f.o.b. its works, on hydraulic compressed sheets although it is estimated the consumer would pay between $14.50 and $15.

Buffalo, April 27.—Scrap consumers are making efforts to pick up small lots at bargain prices and some quotations are slightly lower this week. After substantial purchases of heavy melting steel some consumers have reduced their offers to around $15 but dealers can find a better outlet to holders of unfilled contracts.

Youngstown, O., April 26.—Scrap continues dull with the market lifeless. No improvement in prices is expected for the present. Quotations are considered nominal.

Cleveland, April 27.—Trading in iron and steel scrap is almost entirely absent. Consumers are buying almost nothing and little is doing among dealers. Inquiry also is lacking although the feeling in the trade is that movement cannot be much longer delayed as belief is growing that the bottom of the market is about reached. Few price changes have been made and in the absence of buying, quotations are largely nominal.

Cincinnati, April 26—Limited movement of iron and steel scrap is noted. Some dealer buying is being done for filling-in purposes, but consumers are taking practically no new tonnage, as many of them have more stocks on their yards than they actually can take care of at this time. Prices show little change, but most grades are weak.

Detroit, April 27.—Inactivity continues to feature iron and steel scrap. No improvement is noted in the general situation. Buying is limited and in small quantities. Large consumers appear to have their requirements satisfied and show little interest.

St. Louis, April 26.—Weakness continues in iron and steel scrap. Heavy melting steel at $12.50 represents a new low on the present downward movement and a decline of 20 cents per ton since a week ago. Consumers are buying nothing to speak of and refuse to become interested in future requirements, even at the price reductions.

Birmingham, Ala., April 26.—Iron and steel scrap is considered weaker, though quotations remain unchanged. Delivery on contracts continues but new business is slow. Heavy melting steel is still quoted at $13 but little is being bought.

Sheets

New Orders and Specifications Small — Operations Lower— Price Range of $2 Continues

THE sheet market continues quiet, and specifications on contracts are slow in developing. The leading interest is down to a 65 to 70 per cent operating basis; the average among independents in the valley is about 85 per cent. A range of $2 still applies on all grades except full finished, quotable at 4.30c. Mills expect the market for this grade to improve soon.

SHEET PRICES, PAGE 1132

Pittsburgh, April 27.—The American Sheet & Tin Plate Co. is down to a 65 or 70 per cent basis in steel sheetmaking, and independents are averaging 70 to 75 per cent. Further cuts in production may be necessary unless the buying rate improves. Stocks nowhere are large. Price weakness is no more accentuated than a week ago, some cuts here and there under 3.25c on black sheets not being sufficiently extensive to change that figure as the market's quotable minimum. The 3.35c asking price has not been abrogated and some tonnage is bought almost every day at that figure. A $2 range also applies on galvanized, quoted at 4.50c to 4.60c, and in blue annealed at 2.40c to 2.50c. Full finished automobile sheets, however, have settled to 4.30c. Small orders are the rule in export business.

Philadelphia, April 27.—Blue annealed sheets are easier, the majority of sales at 2.50c Pittsburgh, but 2.40c is more frequent. Black sheets are 3.25c to 3.35c; galvanized 4.50c to 4.60c, with occasional sales of black and galvanized at slightly lower prices. New business is good, although somewhat under shipments. Sales of tin mill black sheets generally are at 3.35c, Pittsburgh.

Boston, April 27.—Several round tonnage lots of galvanized sheets during the week brought the total of sales ahead of the previous week. Black sheets are quiet. Prices are unchanged.

Buffalo, April 27.—Competition for sheet business is keen and large users probably are obtaining less than the quoted prices, which are 3.35c Pittsburgh for black, 2.50c for blue annealed and 4.60c for galvanized.

Youngstown, O., April 27.—Sluggishness continues to characterize the district sheet market. Releases of specifications against contract tonnages are difficult to obtain and while district operation is averaging about 85 per cent, mill schedules cannot be determined many days in advance. Prices have not yielded to any marked

extent. Galvanized continues quotable from 4.50c to 4.60c. The minimum figure frequently applies when attractive tonnage is placed or where the mill desires to retain a customer. While many producers are quoting blue annealed at 2.50c and are entering tonnage on this basis, a price of 2.40c is associated with some transactions involving tonnage and competitive quotations. Prices named on black sheets by district mills are 3.25c and 3.35c although the scarcity of new business makes a price representative of the market difficult to determine. Competition in the Detroit district continues keen. High-grade tonnage has not shown any enlargement although conditions in Detroit lead some producers to expect a slight betterment before the close of this month. High-grade sheets are quoted at 4.30c although little new business is being negotiated.

Chicago, April 27.—Sheet specifications continue to be moderately light. While the market in the Chicago district proper can be said to be fairly firm, some price variations have been encountered in black and galvanized, but the concessions have not exceeded $2 a ton and have been in connection with considerable tonnage. The official prices quoted by the leading makers at Chicago are 3.50c, Chicago, for black, 4.75c for galvanized and 2.65c for blue annealed.

Cleveland, April 27.—Unuusal quietness is shown in the sheet market. Although occasional carlot sales are noted, large tonnages are scarce. More weakness is noted in prices, 4.50c Pittsburgh equivalent becoming more of an open factor in galvanized, although some producers still hold to 4.60c. Black sheets are steady at 3.25c to 3.35c, Pittsburgh, but weakness in the minimum is more pronounced. Several interests holding to the 3.35c price report a scarcity of bookings and expect to adopt the lower quotation this week. Blue annealed holds steady at 2.50c, Pittsburgh. On autobody stock 4.30c is the open figure, 4.40c having disappeared almost entirely.

Tin Plate

Mills Operating at 95 Per Cent—Last Half Lined Up

TIN PLATE PRICES, PAGE 1132

Pittsburgh, April 27. — Continued high operating rates among the tin mills are reducing backlogs rapidly. While some buyers are commencing to line up their last half requirements, the books have not been opened for that period although they probably will be shortly. Mills' operating averages continue at 95 per cent, some plants being practically on a 100 per cent basis. In some quarters it is expected that the late season for planting may cut down the consumption of tin plate for food containers. The open market figure is unchanged at $5.50.

Strip Steel

Shipments Better Than March and Buying Is on Increase

STRIP PRICES, PAGE 1132

Pittsburgh, April 27.—Strip steel shipments, both hot and cold, are considerably better than in March, some makers averaging a 10 per cent increase. While curtailment of buying was encountered during the first part of April, orders have been growing. Operations for April will average better than in March. While some large tonnages of cold strips have been booked at 3.75c, the open market figure still is 3.90c. Hot strips six inches and wider are firm at 2.30c, and demand appears to be expanding.

Cleveland, April 27. — Strip steel sales are better. One large interest reported better bookings in one day recently than in weeks previously. Prices are firm, 2.30c on wide and 2.50c on narrow hot applying. A good tonnage of narrow went at the full price April 26. Cold-rolled is steady at 3.90c on small lots, with 3.75c being the minimum on large tonnages. Tubing stock is steady at 3.50c, this price not applying to other classes of cold rolled.

Pipe

Mills Note Improved Demand in Oil Country Goods—Cast Buying Continues Heavy

IMPROVED demand is noted by pipe mills, oil country goods and larger jobber buying predominating. Operations range from 75 to 85 per cent. Cast pipe activity continues unabated. Underbid by French interests an American maker was awarded 1100 tons at Danvers, Mass. Much tonnage has been placed quietly around Chicago. Stickney, Ill., bought 2500 tons.

PIPE PRICES, PAGEES 1132 AND 1132

Pittsburgh, April 27.—With improvement in demand noted in standard full weight merchant pipe and in oil country goods the pipe mills' operating position continues to improve. The National Tube Co.'s schedules are between 70 and 75 per cent. Independents average from 75 to 85 per cent. Orders are more numerous from jobbers in lots of 5 to 12 carloads at a time, the latter from the larger distributors. These stores find it difficult to maintain evenly balanced stocks since it is not always easily possible to replenish them with prompt shipments from the mills. In oil country goods the same situation applies although the larger orders are being shipped direct to oil well locations. Considerable oil and gas line pipe business is scheduled for award before another month elapses. Prices are firm.

Boston, April 27.—Eastern pipe foundries are well booked and are independent in their attitude toward new business. Municipal letting is quiet, but much work is expected to come out in May. A French interest was low on 1100 tons for Danvers, Mass., but the contract went to a domestic maker. Prices of small sizes are exceptionally firm.

Chicago, April 27.—Deliveries of cast iron pipe by most makers in the past week became more deferred. An unusual number of contractors' jobs are pending and contractors look for a record breaking year. Considerable quiet buying has been done, including 2500 tons for a Chicago suburb. Bids on the larger sizes recently have been generally based on $38, Birmingham, or thereabouts and at this time the market seems to be most aptly quoted at $38, Birmingham, for pipe over 24-inch, $41 to $42, Birmingham, for 16 to 24-inch and $45 to $46, Birmingham, for 4-inch. The freight to Chicago is $8.20.

New York, April 27.—Steadiness dominates the cast pipe market, except where foreign competition figures. Municipal demand in the immediate district has fallen off, but private inquiry is well maintained, and in St. Peterburg, Fla., a lot of 10,000 tons is up. B. Nicoll & Co., representing French makers, were low on about 1000 tons for Kingston, N. Y.

Birmingham, Ala., April 26.—Inquiries and demand are off compared to conditions a few weeks ago in the cast iron pressure pipe market. Unfilled orders warrant full operation of shops. Soil pipe shops are maintaining a four-day a week schedule and have some stock in warehouses. Quotations are unchanged.

CONTRACTS PLACED

2500 tons, Stickney, Ill., to Lynchburg Foundry Co.
1800 tons, Milwaukee, to Lynchburg Foundry Co.
1100 tons, Danvers, Mass., to United States Cast Iron Pipe & Foundry Co.
1000 tons, Saginaw, Mich., to National Cast Iron Pipe Co.
750 tons, Springfield, Ill., to United Stataes Cast Iron Pipe & Foundry Co.
300 tons, Melrose, Mass., to Warren Foundry & Machine Co.
20,000 feet, 6 to 12-inch pipe for Vancouver, B. C., Evans, Coleman & Evans, general contractor, centrifugal pipe to unstated maker.
10,000 feet 6-inch, 5000 feet 8-inch and 5000 feet 12-inch cast pipe for Vancouver.

B. Greenhill Grinnell Co., Ltd., for Belgian pipe.

CONTRACTS PENDING

10,000 tons, mostly small sizes, St. Petersburg, Fla.; bids asked.
1761 tons, 4 to 16-inch class B and C pipe, Pasadena, Calif.; bids in.
1000 tons, mostly 16-inch, Kingston, N. Y.; P. Nicoll & Co., representing French makers, low bidders.
192 tons, 8-inch class B pipe, Santa Ana, Calif; bids in May 3.

Bolts, Nuts, Rivets

Some Recession After Heavy March Buying—Prices Firm

NUT AND BOLT PRICES, PAGE 1132

Chicago, April 27.—Bolt and nut prices are holding up well considering slackness in specifying and no major shading has appeared. Most makers look for the present lull to wear off within a few weeks. Backlogs have enabled western works to hold operations better than incoming specifications would provide. Small rivets are generally quoted at 70 and 10 off. Large rivets are firm at 2.75c Chicago.

Pittsburgh, April 27.—Representative makers of nuts and bolts report that never in their experience have prices held so well. The basis is 50, 10 and 10 off on large machine bolts, and while orders have fallen off a trifle the past week or 10 days, they feel sure this is temporary and a natural reaction after the heavy buying of March. March was the best month for incoming business and for shipments in several years. Rivet makers here continue to quote 2.60c on structural rivets, and 70 and 10 off on small rivets.

Iron Ore

Good Tonnages Closed at Full Market Prices—Mines Shipping to Docks

Cleveland, April 27.—Some additional tonnages of Lake Superior iron ore have been covered, while two furnace companies still are negotiating for their year's requirements. Full market prices are applying on the standard grades of ore. Some producers have booked good tonnages of ore in the last few weeks that were not generally open to negotiation, and it is indicated that if all users take the ore that they have engaged, this year's shipments will be equal in the aggregate to those of last year.

Vessel rates have not been announced. Ice conditions are delaying shipments. The steamer HARVESTER left Chicago last Thursday for Superior, Wis. Michigan mines are loading ore in cars for shipment to docks.

The Canadian Furnace Co., Ltd., Port Colborne, Ont., blew in its blast furnace on April 16.

Bars

Buying Coming Back After Lull as Users Deplete Stocks—Prices Continue to Hold Steady

EFFECTS of overbuying in March are wearing off and the decline in orders early in April seems near an end. Renewed buying is apparent, though in somewhat smaller tonnages. Stocks in consumers' hands are small. Prices seem to be well maintained in all districts. Except for railroad car and automobile builders consumers have not lessened rate of consumption.

BAR PRICES, PAGE 1132

Chicago, April 27.—Bar mill products have been in somewhat better demand the past week and specifications come nearer equaling shipments than in plates or shapes. Barring the car building and automobile industries, consumption has not contracted appreciably. Orders are substantially as numerous as a month ago but individual quantities are lighter. Compared with two weeks ago, bar specifications are heavier. Low stocks in the hands of consumers continue a strong factor. The official price of soft steel bars is 2.10c, Chicago.

Both bar iron and rail steel are holding at 2.00c, Chicago. Seasonal business in rail steel continues unusually well.

Pittsburgh, April 27.—Merchant steel bar buying is progressing in a favorable way although consumers still adhere to their policy of maintaining only moderate stocks and buying additional steel as needed. While undoubtedly some bar orders are being billed at 1.90c on old contracts to large tonnage users, no change has taken place in the open market figure, 2.00c. Cold bar finishers, structural steel fabricators, and other large consumers, and jobbers, are buying every day at 2.00c. In bars as well as in many other finished steel products purchasers took more than they needed in the first quarter and have had enough for April needs.

Cleveland, April 27.—New specifications in steel bars from this territory are considerably below the mark of March but shipments make a better showing and are within 10 per cent of the tonnage of last month. If anything, consumers are buying more cautiously and for shorter periods ahead than has characterized their persistently hand-to-mouth methods of the past. One factor in this situation in this territory comes from the effects of the prolonged strike of certain groups in the building trades which is holding back a movement of considerable tonnage for construction purposes. Bar prices are steady at 2.00c, Pittsburgh or 2.19c, Cleveland.

Ryerson Acquires Boston Concrete Bar Business

Chicago, April 27.—Joseph T. Ryerson & Son, Inc., have taken over the reinforcing bar division of the Penn Metal Co., Boston. The Ryerson company will add to the size of stock carried and the facilities for accommodating New England reinforcing bar consumers will be increased. General sales offices have been opened at 677 Concord avenue, Cambridge, Mass. A complete staff of engineers and draftsmen will be located in that office. In addition to the Boston office, the Ryerson company has eastern plants at Jersey City, N. J., and Buffalo, N. Y. The Ryerson acquisition includes only the reinforcing bar business of the Penn Metal Co. which purchased the stock and good will of the Midvale Steel Co. several years ago at the time of the Bethlehem Steel Co. merger.

Cold Finished Steel

Bar Makers Hold Operating Rate at Expense of Backlogs

Pittsburgh, April 27.—Cold bar finishers have been remarkably successful in maintaining their backlogs so far this year and incoming business has about equalled shipments. With operations at 80 to 85 per cent average basis, a healthy business condition is denoted. Recently specifications have lagged somewhat but diversified users still furnish moderate sized orders. The market price is exceedingly firm at 2.50c.

Hoops and Bands

Some Slackening in Buying But Backlogs Keep Mills Busy

HOOP PRICES, PAGE 1132

Pittsburgh, April 27.—Buying of hoops and bands is on a somewhat lower scale than during the winter although bookings for April will be close to the March total. Makers here continue to keep their narrow mill equipment at full capacity but backlogs are being dissipated. Customers are well stocked and this has brought a lull in day to day buying. The base price on narrow hot flats under six inches is firm at 2.50c.

Lewis Differential Co., 118 South Clinton street, Chicago, has increased its capital from $200,000 to $250,000.

Structural Shapes

Awards of Small Projects Continue Numerous—Inquiries Involve Some Heavy Tonnages—Activity Above That in 1925

SOME lessening of structural activity is indicated in a few districts but the market continues strong. Awards are widespread although small. Reported award of 8000 tons for a Pittsburgh hotel features placements. Inquiries continue heavy, and a large number of projects are being figured by architects and fabricators. Action on 6500 tons for Chicago district oil work is expected to be placed this week. Structural buying is lagging behind March in a few cases but generally exceeds that of April, 1925. Bethlehem Steel Co. is expected to break the March record of shipments this month.

Prices on plain material show little weakness. Keen competition on fabricated material continues to bring out unusually low quotations.

STRUCTURAL SHAPE PRICES, PAGE 1132

New York, April 27.—Although some fabricators are in receipt of more specifications than they can handle, the structural market in this district is less active. Both inquiries and orders are less numerous and on some projects where unusually large tonnages are involved, there appears to be a delay in closing. Prices on shapes still are fairly steady at 1.90c, Pittsburgh.

Boston, April 27.—A noticeable improvement in the number of small structural awards has developed in New England. Funds have been appropriated for an extensive school house construction program for 1926 at Boston.

Pittsburgh, April 27.—Several structural shape fabricators note no diminution of inquiries. Apparently action continues to be deferred in connection with the larger jobs pending here although it is reported that the 8000-ton Pennsylvania hotel job has been let to the leading interest. Prices on material fabricated and delivered to the job still show keen competing conditions. Some recent successful levels have been as low as $65 and one job developed $61 f.o.b. a point six miles distant from where the job is to be erected. Plain material is firm at a 1.90c minimum and some small lots still carry a 2.00c figure.

Philadelphia, April 27.—Structural shape demand appears to be increasing. Bethlehem Steel Co. now is expected to break shipment records, the previous high having been in March, when 108,000 tons of shapes were shipped. Other eastern mills are operating fuller, increasing production. Prices are unchanged at 1.80c to 2.00c Pittsburgh.

Cleveland, April 27.—Large contracts still are lacking in the local structural market. Plain material is firm at 2.09c Cleveland or 1.90c Pittsburgh.

Chicago, April 27.—Pending work in structural steel is heavy and prospects have not dimmed but at the moment awards are light and competition for business has sharpened somewhat. The 6500 tons for the Roxana Petroleum Corp. refinery at East Chicago, Ind., should be placed within the week. The official quotation on beams is 2.10c, Chicago, with a leaning toward weakness.

Awards Compared

	Tons
Awards this week	19,865
Awards last week	24,455
Awards two weeks ago	22,481
Awards this week in 1925	23,397
Average weekly awards, 1926	26,870
Average weekly awards, March	36,528
Total awards to date, 1925	577,702
Total awards to date, 1926	449,794

CONTRACTS PLACED

8000 tons, Pennsylvania hotel, Pittsburgh, understood to have been awarded the American Bridge Co.

1600 tons, apartment building at 1450 Lake Shore drive, Chicago, to McClintic-Marshall Co.; Childs & Smith, 720 North Michigan avenue, Chicago, architects.

1400 tons, power station addition, for Illinois Power & Light Co. at Venice, Ill., to McClintic-Marshall Co.

900 tons, bridge, Louisville, Henderson & St. Louis railroad, to Louisville Bridge & Iron Co.

720 tons, hospital, Boston, to Palmer Steel Co.

700 tons, involved in the following three awards:
Loft, Bush Terminal, Forty-first street and First avenue, Brooklyn, to Post & McCord.
Coal bins, larry runway, cable way trestle and other coal handling structures for the Brooklyn Union Gas Co., Brooklyn, to the Berlin Construction Co.
Savings bank, Port Chester, N. Y., to the Berlin Construction Co.

600 tons, apartment hotel, 687 Lexington avenue, New York, to the Paterson Bridge Co.

510 tons, 300 tons shapes, 175 tons metal lumber and 35 tons concrete bars for Ashtabula high school, Ashtabula, O., through Payne & Deymer, Painesville, O., general contractor, to Republic Structural Iron Works.

500 tons, power plant addition for the Potomac Electric Power Co., Washington, to the Jones & Laughlin Steel Corp.

410 tons, armory roof, San Francisco, to Schrader Iron Works.

400 tons, manufacturing building for Bird & Son, Walpole, Mass., to independent fabricator.

350 tons, apartment, Charlotte, N. C., to unnamed fabricator.

300 tons, cab ramp, Pennsylvania station, New York, awarded through the George A. Fuller Co., Flatiron building, general contractors, to Phoenix Bridge Co.

300 tons, moveable dam for the Erie canal, New York state, to the Bethlehem Steel Corp.

250 tons, McCrory store building, Philadelphia, to McClintic-Marshall Co.

250 tons, hotel at Waynesburg, Pa., to the Jones & Laughlin Steel Corp.

225 tons, alterations to store building of Marshall Field & Co., Chicago, to A. Bolter's Sons.

200 tons, plant addition for the General Electric Co., Pittsfield, Mass., to Levering & Garrigues Co.

200 tons, building for the Enterprise Stamping Co., McKees Rocks, Pa., to the Austin Co.

200 tons, railroad station, West Penn Power Co., Greensburg, Pa., to the Bollinger-Andrews Construction Co.

165 tons, Central school, Rochester, Minn., to American Bridge Co.; Mads Madsen Co., 702 National building, Minneapolis, general contractor.

160 tons, Brooklyn Masonic temple, Cleveland, to Forest City Structural Steel Co.

150 tons, theater, Sycamore and Wilshire boulevard, Los Angeles, to Union Iron Works of Los Angeles.

150 tons, theater, Maplewood and Western avenue, Los Angeles, to McClintic-Marshall Co.

135 tons, arena extension, Boston, to New England Structural Co.

130 tons, plant alterations, Beacon Oil Co., Everett, Mass., to Palmer Steel Co.

130 tons, *Milwaukee Journal* garage and warehouse, Milwaukee, to Milwaukee Bridge Co.

126 tons, 61 at Botany building University of Minnesota and 65 at Columbia Heights school, Minneapolis, to Crown Iron Works Co.

117 tons, apartment, Washington and Powell streets, San Francisco, to Brode Iron Works.

112 tons, plant for Pennsylvania Cement Co., Portland Point, N. Y., through Turner Construction Co., New York, general contractor, to Jones & Laughlin Steel Corp.

100 tons, Wilson garage, Wilkinsburg, Pa., to the Jones & Laughlin Steel Corp.

100 tons, Blatz Co., garage and repairshop, Milwaukee, to Worden-Allen Co.

100 tons, approximately, garage, 424-26 East Eighty-ninth street, New York, awarded through the Magoba Construction Co. Inc., 103 Park avenue, to the Grand Iron Works.

100 tons, school, Huntington Beach, Calif., to Minneapolis Steel & Machinery Co.

100 tons, apartment building, Cambridge, Mass., to Palmer Steel Co.

Tonnage unstated, warehouse and manufacturing building for A. J. Krank Mfg. Co., St. Paul Foundry Co.

CONTRACTS PENDING

7500 tons, state bridge, Bath, Me.; bids postponed from May 4 to 12.

7000 tons, New York Edison office building, Fourteenth street and Irving place, New York; contemplated.

4000 tons, Roosevelt high school, New York; Lustbader Construction Co., 103 Park avenue, New York, awarded general contract.

1250 tons, loft at 251 West Thirtieth street, New York; pending.

1000 tons, pier No. 11, Honolulu; bids May 26. Reported last week as being 800 tons.

1000 tons, garage for Metropolitan Utilities Co., Omaha, Nebr.; pending.

800 tons, Trinity Corp., loft, Hudson and Vestry streets, New York; pending; reinforcing bars will also be required for this project.

650 tons, city garage, second and Hill streets, Los Angeles; bids in.

600 tons, Charles Meyer loft building, 247 West Thirtieth street, New York; pending.

600 tons, Charles Meyer loft building, 251 West Thirtieth street, New York; pending.

600 tons, Multnomah stadium, Portland, Oreg.; bids being received.

600 tons, school 203 New York; pending.

600 tons, school 208, New York; pending.

500 tons, bridges over West Water Way at Spokane street, Seattle; bids will be called for shortly.
500 tons, Y. M. C. A. building, Northside, Pittsburgh; bids being considered.
500 tons, city hall, Columbus, O.; bids being taken.
500 tons, nurses' home, St. John's hospital, Pittsburgh; bids being taken.
500 tons, division "Q" of the North Side sewage treatment station, for Sanitary District of Chicago, 910 South Michigan avenue, Chicago; pending.
455 tons, eight bridges, bureau public roads, San Francisco; Vincennes Bridge Co. low bidder.
450 tons, three bridges, Portland, Oreg.; bids in April 29.
400 tons, 13-story office, Madison avenue and Sixtieth street, New York; pending.
400 tons, hotel, 106 West Fifty-sixth street, New York; pending.
300 tons, Passaic arms apartment, Passaic, N. J.; pending.
250 tons, Wilkinsburg hotel, Wilkinsburg, Pa.; bids being taken.
250 tons, substructure and superstructure, bridge No. 21 over Chartiers creek; bids closed April 28 by John P. Moore, Allegheny county comptroller, Pittsburgh.
250 tons, Wilkins school, Swissvale, Pa.; general contract awarded Edward H. Cannon, McKeesport, Pa.
250 tons, freight warehouse, Pennsylvania railroad, Eleventh and Pike streets, Pittsburgh; bids being taken.
250 tons, First National Bank building, McKees Rocks, Pa.; bids being taken.
200 tons, bridge for the Pennsylvania railroad; bids asked.
150 tons, Delaware apartment, Chicago; J. A. Armstrong, 127 North Dearborn street, Chicago, architect.
150 tons, building for the Universal Car Loading & Distributing Co., care of the Pennsylvania railroad, Pittsburgh; bids being taken.
122 tons, shapes and reinforcing bars for bridge, Louisiana highway commission; bids in May 11 by W. B. Robert, state highway engineer, Baton Rouge, La.
120 tons, town hall, Bellows Falls, Vt., bids being taken.
100 tons, May Drug Co. store building, Wilkinsburg, Pa.; bids being taken.
100 tons, Otis Elevator building, San Francisco; bids being received.
100 tons, West Homestead, Pa., school; bids being taken.
Tonnage unstated, Cedar avenue bridge, Minneapolis; bids to close May 19.
Tonnage unstated, bank and office building, Greensboro, N. C.; bids being taken.
Tonnage unstated, Hotel Schroeder, 18 stories, 150 x 200 ft., at Fifth street and Grand avenue, Milwaukee; plans being completed by Holabird & Roche, 104 South Michigan boulevard, Chicago, architects.
Tonnage unstated, Lady of Loretta school, Hempstead, Long Island, N. Y.; pending.

Concrete Bars

Pending Tonnages Heavier and Awards Continue Strong —Prices Are Unchanged

HEAVY tonnages are pending in the concrete reinforcing bar market. Inquiries are more numerous. Awards continue strong. Roadwork is more active and bar fabricators are buying large tonnages from mills. Competition among sellers in the Chicago district has brought prices down to the mill level on roadwork. Quotations generally are firm.

REINFORCING BAR PRICES, PAGE 1132

Chicago, April 27.—Pending work in reinforcing concrete bars continues heavy but a hesitancy in placing business again is apparent. Competition for Illinois road work is sharp and mill prices have been quoted. Awards do not appear quite up to the level of last April. Billet bars are quoted 2.60c, Chicago warehouse, and rail steel 2.00c.

Boston, April 27.—While much work is in prospect recent awards have been few and the total tonnage of the week was low. Prices are unchanged.

Buffalo, April 27.—Unplaced inquiry for reinforcing bars is piling up in this district and must be covered soon. Contracts involving 950 tons were to be placed early this week and others were pending. Prices are firm at 2.265c for mill shipment lots and 2.75c to 2.85c for stock lots.

Pittsburgh, April 27.—Inquiries for concrete bars for commercial construction are numerous but for industrial buildings they are scarce. New billet steel bars are unchanged at 2.00c to 2.10c.

Cleveland, April 27.—Labor union difficulties continue to tie up building steel demands. Several leading building supply houses have shut down until the strike settlement, and one or two jobbers are laying off men in building material departments. Award of 3000 tons for the Akron sewage disposal plant to Jones & Laughlin Steel Corp. is the largest project placed in this district in many weeks. New billet bars are 2.00c Pittsburgh or 2.19c Cleveland. Rail steel is steady at 1.80c to 1.90c mill. Bars from stock range from 2.50c Youngstown to 3.10c Cleveland.

Awards Compared

	Tons
Awards this week	12,385
Awards last week	6,870
Awards two weeks ago	9,520
Awards this week in 1925	2,805
Average weekly awards, March	4,548
Average weekly awards, 1926	5,066
Total awards to date, 1925	109,039
Total awards to date, 1926	93,443

CONTRACTS PLACED

3000 tons, Akron sewage disposal plant, Akron, O., to Jones & Laughlin Steel Corp. by the Walsh Construction Co., general contractor.
1200 tons, National Press building, Washington, to Concrete Steel Co.
1000 tons, Alden Park Manor, Philadelphia, to F. R. Phillips & Sons Co., Philadelphia, for importation from Europe instead of award to Kalman Steel Co. as announced last week.
1000 tons, Northwestern university stadium, Evanston, Ill., to Kalman Steel Co.
850 tons, Sheridan-Aldine apartment, Chicago, to Inland Steel Co.; McLennan Construction Co., 307 North Michigan avenue, Chicago, general contractor.
600 tons, Chesapeake & Potomac Telephone Co. building, Washington, to Rosslyn Steel & Cement Co.
500 tons, apartment building at Pearson and Dewitt streets, Chicago, to Concrete Steel Co.
500 tons, grain elevator at Milwaukee, for Chicago, Milwaukee & St. Paul railroad, to Inland Steel Co.
500 tons, Montgomery Ward & Co. warehouse addition, Baltimore, to Dietrich Bros.
400 tons, Pennsylvania Cement Co. plant at Portland Point, N. Y., through Turner Construction Co., New York, general contractor, to Jones & Laughlin Steel Corp.
385 tons,, work for city of Minneapolis, to C. A. P. Turner Co.
335 tons, LaSalle street bridge, Chicago, to Olney J. Dean & Co.
300 tons, hotel at East St. Louis, Ill., to Concrete Engineering Co.
300 tons, Fountain theater, Cincinnati, to Pollak Steel Co.
300 tons, Morganite Brush Co. building, Long Island City, New York, to Truscon Steel Co.
297 tons, concrete and merchant bars, Southwest Portland Cement Co., Los Angeles, to unnamed mill.
280 tons, additional work on Astor street apartment, Chicago, to Olney J. Dean & Co.
190 tons, Richland hotel, Mansfield, O., through Van Blarcom Co., Cleveland, general contractor, to Pollak Steel Co.
175 tons, Alden Park Manor, Philadelphia, to Kalman Steel Co. in addition to 1000 tons awarded F. R. Phillips & Sons Co. for importation from Europe.
175 tons, Tegtmeyer hotel, Milwaukee, to American System of Reinforcing.
170 tons, John Shedd Community Edgewater Presbyterian church, Chicago, to Calumet Steel Co.
150 tons, Hauser Packing Co., Santa Fe avenue, Los Angeles, to Geo. L. Eastman Co.
150 tons, Knights of Columbus building at Gary, Ind., to Concrete Steel Co.
125 tons, colored elementary school, Baltimore, to Concrete Steel Co.
100 tons, West Portal school, San Francisco, to Badt-Falk Co.
100 tons, Bain building, Chicago, to Concrete Engineering Co.
100 tons, sausage factory for C. T. Gross, Milwaukee, to Worden-Allen Co.
100 tons, Harbor apartment, Chicago, to Inland Steel Co.
100 tons, coal pocket, Paterson, N. J., to Igoe Bros.
100 tons, street paving, Irvington, N. J., to Igoe Bros.
100 tons, Pierce, Butler & Pierce warehouse, Long Island City, N. Y., to Truscon Steel Co.
100 tons, Montague irrigation district, Montague, Calif., to unnamed interest.
Tonnage unstated, foundations for plant for Phoenix Portland Cement Corp., Birmingham, Ala., to Southern Steel & Rolling Mill, Inc.
Tonnage unstated, Wabash railroad bridge, Decatur, Ill., to Laclede Steel Co.
Tonnage unstated, Y. M. C. A. building, Mason City, Iowa, to Kalman Steel Co.

CONTRACTS PENDING

800 tons, Mid-Hudson river bridge piers, Poughkeepsie, N. Y. General contract to Philipsburgh Construction Co., Yonkers, N. Y.
700 tons, Hochschild & Kohn store, Baltimore; pending.
500 tons, Pennsylvania hotel, Pittsburgh; bids about to be asked.
500 tons, two Auto-Inn buildings, Rochester, N. Y.; bids in.
500 tons, News Syndicate Co. building, Brooklyn, N. Y.; general contract to Hegeman Harris Co., Inc, New York.
500 tons, building work, for Dwight P. Robinson & Co., Inc., New York; pending.
450 tons, F. N. Burt Co. addition, Buffalo, N. Y.; bids in.
300 tons, tobacco factory, Lorillard, Va.; general contract to White Construction Co., New York.
300 tons, hotel at Beaver, Pa.; bids being taken.
Several hundred tons, five or six road projects in Buffalo district; pending.
Tonnage unstated, hotel at Sewickley, Pa.; bids about to be asked.
Tonnage unstated, General Forbes hotel, Pittsburgh; bids being compiled.
Tonnage unstated, Loew's theater and office building, Pittsburgh; bids about to be asked.
Tonnage unstated, Rowland & Clark theater and office building, Pittsburgh; bids about to be asked.

Rails, Cars

Secondary Rail Buying Gaining at Chicago—Light Rails Drop $1—Equipment Inactive

RAILROAD buying is featured by the secondary rail movement which is gaining strength in the Chicago territory. The Chesapeake & Ohio has come into the market for 30,000 tons, duplicating its order of three or four months ago. Light rails have dropped $1 or to $34 a ton at Pittsburgh. Equipment buying is inactive and inquiries are few.

RAILROAD TRACK MATERIAL PRICES, PAGE 1132

Chicago, April 27.—The expected secondary buying of track material has received impetus from the Chesapeake & Ohio inquiry for 30,000 tons of rails and 4500 tons of track fastenings for delivery in July and August. This duplicates the order of this railroad three to four months ago. The Roxana Petroleum Corp., St. Louis, has placed 500 tons of rails for its refinery project at East Chicago, Ind. Rail mills in this district continue to operate at capacity and are unable to meet all specifications. New track fastening business has been relatively light, the leading interest taking 7000 kegs of spikes and bolts.

Boston, April 27.—Springfield street railway placed substantial orders for girder rails and frog and switch material during the week. Considerable other buying of railway supplies has been done in the district.

Boston & Maine has placed orders for equipment required for the installation of electric light systems on some 800 passenger coaches.

New York, April 27.—Freight car buying is slack in this district little inquiry or orders being noted. Locomotive buying is restricted to small scattered orders. Southern railway has closed on 500 flat car underframes to Tennessee Coal, Iron & Railroad Co. Southern Pacific will build 650 box cars in its own shops.

Pittsburgh, April 27.—The light rail price again has receded $1 and $34 now represents the quotable market. Between that level per net ton on billet-rolled rails, and the $35 per gross ton figure on billets is little or no margin, but sales continue to be made in competitive fields in lots of one, two or three carloads at a time.

Accessory orders are small, and the weakness in the light rail price is accompanied by a similar weakness in small spikes. With 3.00c the general market level, 2.90c and even 2.85c has been done. Standard spikes are firm at 2.80c and tie plates at 2.25c to 2.35c.

Sault Ste. Marie, Ont., April 26.—Algoma Steel Corp. has started its rail mill on a double shift, recent orders including 2935 tons of 90-pound rails for the Toronto & Northern Ontario railway, and 35,000 tons of 85-pound rails for the Canadian National railways. The Steel company's 12-inch and 18-inch merchant mills also are in operation.

ORDERS PLACED

Canadian National railways, 150 cars, 60, 40-ton freight cars to Eastern Car Co., subsidiary of British Empire Steel Corp., 40 10,000-gallon tank cars to Canadian Car & Foundry Co., and 50 express refrigerator cars to National Steel Car Co.

Pittsburgh, Shawmut & Northern, one combination gasoline, motor coach, to J. G. Brill Co.

Sinclair Refining Co., 50 tank cars, to General American Car Co.

Southern Pacific, 650 box cars, to own shops. cars, to the National Steel Car Corp.

Southern railway, 500 flat car underframes, to Tennessee Coal, Iron & Railroad Co.

LOCOMOTIVE ORDERS PLACED

Yunnan Kopei railway, China, six switch engines, to the Baldwin Locomotive Works.

Chicago & Illinois Western, two switch engines, to the Baldwin Locomotive Works.

American Railroad of Porto Rico, one switch engine, to the Baldwin Locomotive Works.

Southern Pacific, five locomotives to own shops.

Utah Copper Co., one oil-electric locomotive, the American Locomotive Co., the General Electric Co., and the Ingersoll-Rand Co. co-operating in its construction.

ORDERS PENDING

Bangor & Aroostook, one dining car; pending.

City Board of Transportation, Philadelphia, 150 subway cars; contemplated.

Cuban American Sugar Co., 100 cane cars; bids asked.

Erie, 27 passenger car underframes; pending.

Lehigh Valley, several gasoline-electric motor and trailer cars; pending.

National Tube Co., 14 skelp cars and 25 car bodies; bids asked.

Rock Island, 200 underframes; pending.

South Porto Rico Sugar Co., 16 flat cars, bids asked; these are in addition to 100 cane cars, previously noted as pending.

W. R. Grace & Co., New York, 201 miscellaneous freight cars for South America; bids asked.

LOCOMOTIVE INQUIRIES PENDING

Delaware & Hudson, one to 15 locomotives; pending.

Develops New Section

Production of a light steel section designed for the use of floors and roofs of schools, hotels, residences, etc., has been started by the Jones & Laughlin Steel Corp., Pittsburgh. The new product is the outcome of a long period of development.

Suburb Now Campbell, O.

By a court order of April 26 the name of the city of East Youngstown, O., has been changed to Campbell. The new name was chosen by a group of citizens who requested the change in honor of James A. Campbell, president of the Youngstown Sheet & Tube Co.

Wire

Weather Still Limits Buying from Jobbers—Some Gain in Demand Seen

ADVERSE weather conditions continue to be blamed for limited demand on warehouse stocks of wire and its products and most present strength of the market is from manufacturers. Another element of strength is lack of stocks in jobbers' hands, indicating immediate call on mills when buying starts. Prices are steady on wire and nails with lack of shading.

WIRE PRICES, PAGE 1132

Chicago, April 27.—Business in wire and wire products continues to be injured by backward weather. This is especially true of the jobbing trade, although in some districts where weather has not been so adverse a factor farmers are spare buyers. The slightly downward trend in manufacturing lines seems due principally to decline in automobile specifications. The fact that stocks in the hands of producers and consumers alike are extremely low minimizes the effect of the general situation. Western wire mills are not averaging over 60 per cent operation. Prices are said to be steady at 2.55c, Chicago or western mill, for plain wire and 2.70c for wire nails.

Boston, April 27.—Wire sales have further receded and nails for mill shipment are almost at a standstill. Prices are unchanged at 2.65c Worcester and 2.875c Boston for plain wire.

Pittsburgh, April 27.—Wire products orders are now commencing to develop in greater number in mixed carloads from jobbers. Gradually this trade is gaining confidence as stocks commence to move. Occasional straight carload nail orders come through and with a sustained period of warmer weather this market undoubtedly will become active. Stocks are not normal for this season and orders will immediately follow expanded consuming rate. One encouraging factor is the sustained market base prices, 2.50c on plain wire and 2.65c on wire nails.

Nonferrous Metals

Demand Is Light But Prices Fluctuate in Narrow Range—Production and Consumption Well Balanced

Prices of the Week, Cents a Pound

	Copper			Spot	Lead					
	Electro delivered	Lake delivered	Casting refinery	Straits Tin, N. Y.	New York	East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
April 21	13.90	14.07½	13.35	63.00	7.85	7.60	6.92½	27.00	17.37½	35.00
April 22	13.95	14.12½	13.40	62.87½	7.85	7.62½	6.90	27.00	17.37½	35.00
April 23	14.00	14.12½	13.40	63.12½	7.85	7.62½	6.92½	27.00	17.50	35.00
April 26	14.00	14.12½	13.50	64.00	7.85	7.65	7.00	27.00	17.25	35.00
April 27	14.00	14.12½	13.50	63.87½	7.90	7.70	7.00	27.00	16.25	35.00

NEW YORK, April 27.—Nonferrous metal demand has been light in the past week. Prices, however, have fluctuated in a narrow range. A waiting attitude was dominant among buyers and sellers. An interesting development was the revision in copper freight rates.

Production and consumption of metals have been well balanced but the market is sensitive, quietness in buying bearing down on prices, and cheering news of continued large consumption buoying them up.

Stocks are light, and shipments continue large. Users are well covered on immediate needs and as they have no incentive to buy ahead, a few lots of metals that are offered for early shipment from time to time, for one reason or another, weigh on the market. Rolling mills are able to make earlier shipments of most products but specifications have been active.

Aluminum and nickel are in steady markets ,and while production and shipment figures are not known as in other metals, it is certain that conditions cannot be much different from that in other metals.

Tin—This market is filled with unusual circumstances, but price relations in the past day or two have been readjusting themselves more nearly toward normal and the spread between spot and futures is a little less, with the latter stronger. Nearby metal has sold up to 64.00c on account of scarcity, while May arrival at the same time was 63.00c or a trifle higher. Consuming interest is mostly in May and the jump from that month to June is fully 1½ cents. Future shipments from the Straits have been selling under 60.00c but now are about up to that figure. Scarcity of supplies in this country probably will continue through May, but world supplies probably will be a little freer toward summer.

Copper—Some electrolytic copper sold as low as 13.87½c delivered in the East (a little under 14.12½c Midwest though the differential usually is ⅛c) in the past week but the market recovered on moderate buying to 14.00c. The recovery was rather easy, due to the fact metal was not offered freely under 14.00c. On Monday with London strong, producers here were strong at 14.00c and inquiry was larger.

Producers of electrolytic copper are quoting 14.12½c delivered Middle West. Lake copper is not affected by the change in freight rates, which are expected to become effective about the middle of June. It is not yet decided whether Lake copper will be quoted more than ⅛ cent over the delivered Connecticut price.

It is thought the revision in rates will have little effect on the distribution of copper although it is probable it will exert a tendency to localize the scrap and secondary trade. It is thought that producers will not appeal the rate decision.

Zinc—Prices have drifted around and buying has been light. Some smelters have remained practically out of the market and some of the sales under 7.00c East St. Louis were made by secondhands. In the past day or two the market has been a little firmer.

Lead—The market on lead has been materially stronger in the past few days after substantial sales of prompt. However, the New York price is unchanged at 7.85c, while numerous low prices on the East St. Louis basis have disappeared and the market is 7.65c for all positions. Lead sheet and pipe prices have been cut ¾ cent.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	18.87½
Copper, hot rolled	22.50
Zinc, ga. 9 to 23 (100-pound base)	11.50 to 11.75
Lead full sheets (cut ¼c more)	11.50 to 12.00
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	23.50
Copper	24.25
RODS	
High brass (round ⅝ to 2½-inch)	16.62½
Naval brass	19.37½
WIRE	
Copper, small lots	16.00
High brass	19.37½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.75
⅝Chicago	9.00 to 9.50
Cleveland	9.00 to 9.25
HEAVY YELLOW BRASS	
New York	7.25
Chicago	8.00
Cleveland	7.25 to 7.50
ZINC	
New York	4.00
Cleveland	4.25 to 4.75
HEAVY COPPER AND WIRE	
New York	11.50
Chicago	11.00
Cleveland	10.75 to 11.00
RED BRASS BORINGS	
New York	8.25
YELLOW BRASS TUBING	
Cleveland	7.25 to 7.50
LIGHT COPPER	
New York	9.25
Chicago	9.50 to 9.75
Cleveland	9.75 to 10.00
LIGHT BRASS	
Chicago	7.25
Cleveland	6.25 to 6.50
ALUMINUM	
Clippings	21.00 to 22.00
Borings, Cleveland	13.00 to 14.00
Cast	18.00 to 19.00

Secondary Metals

Remelt aluminum No. 12	24.00 to 24.50
Brass ingot, 85-5-5-5	11.75

Coke By-Products

Japanese Buyers Close for Sulphate—Distillates Steady

New York, April 27.—Prices of light oil distillates are steady. Pure and 90 per cent benzol is holding at 24 cents, works, in tanks and 29 cents in drums; solvent naphtha and toluol at 35 cents in tanks and 40 cents in drums, and commercial xylol at 36 cents in tanks, and 41 cents in drums. Most sellers believe there will be little change for the present, despite the fact that buying is well maintained and that a slight reduction has occurred in production.

Japanese buyers have closed on a fair quantity of sulphate of ammonia. The export market now may be quoted at $2.55 to $2.60, port, for material in double bags. The domestic market is dull. Prices are nominally unchanged at $2.60 to $2.65, delivered. Late buying by the drug trade for the spring cleaning season is the main activity in naphthalene, which is holding at 8 cents for balls and 7 cents for flakes.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.24	.....
90 per cent benzol	0.24	.....
Toluol	0.35	.....
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.07	
Naphthalene balls	0.08	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.62½	.....

Machinery

Sales Taper Down Still Further But With Exception of Automobile Industry Buying Is Well Scattered—Shipments Improving

PRACTICALLY all territories show a rather sharp drop in the sales of machine tools and shop equipment during the week or ten days. Although the volume of business for April is well below the average for the first quarter, it probably will show up better than that placed in April one year ago. Few large sales are being made, the bulk of orders being single machines. With the exception of the automobile industry, which has closed down on machinery buying, orders are well scattered. Perhaps the largest inquiry abroad is that of the New York Rapid Transit Co. for 50 miscellaneous tools. In addition, this interest is in the market for 25 cranes and two transfer tables. Shipments on equipment has improved considerably and prices are steady.

New York, April 27.—Demand has let down materially in this district. Several sellers report a steady recession since the first of the month. Nevertheless, the market cannot be accurately described as dull. One of the largest lists to come out here recently is that of New York Rapid Transit Co.. and includes approximately 50 miscellaneous machine tools, of which there are perhaps no more than three of any one single item. Simultaneously, this company issued the largest crane inquiry in many weeks, involving 25 electric overhead cranes. The equipment is for the company's new Coney Island shops in Brooklyn. Other machinery inquiries include a list of 10 or 12 items for New York, New Haven & Hartford, including several punches and shears, a 36-inch engine lathe, a radial drill and a bolt cutter. International Motor Co. continues a consistent buyer for its new shop extensions at Allentown, Pa.

Boston, April 27.—Sales in New England dropped off abruptly during the week, but tool manufacturers report no let-up in orders, and if anything, an increase in production schedules. Several plants have gone on overtime and only one has curtailed. Inquiry from railroads and diversified manufacturers points to improved sales in May. At Boston April sales are running about 25 per cent below March according to an estimate. Recent sales include ten machines to a Massachusetts manufacturer who is establishing a new department, 3 tools to a Rhode Island printing machinery company, and scattered tools to textile machine manufacturers and general machine shops. Boston & Albany railroad has issued a list of several tools which is expected to be closed during the coming week. Prices generally are firm, but unaffected by the few recent increases.

Pittsburgh, April 27.—Machine tool sales this past week have been slim. A few single items have been placed and some manufacturers have bought two or three machine tools at a time. Pennsylvania railroad, for instance, recently buying for Pitcairn, Pa., has bought a motor-driven grinder for another shop, an automatic drilling machine and grinder for Altoona, and Pittsburgh & Lake Erie railroad bought its 8-foot boring mill. The latter order, it is understood, went to Niles-Bement-Pond Co. Westinghouse Electric & Mfg. Co. has purchased a few items against its list and probably will conclude these orders this week. New inquiries are scarce. Pittsburgh Crucible Steel Co. awarded a floor-type revolving billet charger to Alliance Machine Co. Crane sales are few, but Jones & Laughlin Steel Corp. is scheduled to buy against its list of seven for Woodlawn this week. Foundry equipment orders have been fairly numerous of late.

CRANE ORDERS PLACED

Three electric overhead cranes, including one 15-ton and two 10-ton, for Sparrows Point, Md., plant of Bethlehem Steel Corp., to Cleveland Crane & Engineering Co.

Three bucket handling cranes, including one 2½-yard and two 4-yard, for Great Lakes Portland Cement Co., Buffalo, to Orton Crane & Shovel Co.

Two 50-ton magnet cranes for Standard Oil Co. of Indiana, Whiting, Ind., to Orton Crane & Shovel Co.

Two handpower cranes, including one 10-ton and one 16-ton, for Honolulu Iron Works, New York, to Whiting Corp.

Among single awards were: 5-ton handpower crane for American Metals Co., New York, for installation in Mexico, to Armington Engineering Co.; 20-ton used locomotive crane for Mansville Sand Co., Hull, Canada, to Philip T. King; 25-ton locomotive crane for Long Island railroad, to unnamed builder; 15-ton locomotive crane for Gulf States Creosoting Co., to American Hoist & Derrick Co.; 50-ton locomotive crane for Kelly Atkinson Steel Construction Co., Chicago, to Orton Crane & Shovel Co.; 18-ton locomotive crane for American Car & Foundry Co., Chicago, to Orton Crane & Shovel Co.; 18-ton locomotive crane for Chevrolet Motor Co., St. Louis, to Orton Crane & Shovel Co.; 18-ton locomotive crane for Briggs Mfg. Co., Detroit, to Orton Crane & Shovel Co.; 12-ton caterpillar crane for Consolidated Gas Co., New York, to Orton Crane & Shovel Co.; ¾-yard bucket handling crane for Fox King Construction Co., Salem, N. J., to Moore Speedcrane Co.; 1-yard bucket handling crane for Wisconsin Lime & Cement Co., Chicago, to Moore Speedcrane Co.; 1-yard bucket handling crane for Central Lime & Cement Co., to Moore Speedcrane Co.

CRANE ORDERS PENDING

Twenty-five electric overhead cranes, including three 30-ton, six 15-ton, two 7½-ton, twelve 5-ton and one 2-ton, and two transfer tables for Coney Island shops of New York Rapid Transit Co., Brooklyn, N. Y.; bids asked.

Seven cranes of 5 to 15-ton capacity for Jones & Laughlin Steel Corp., Woodlawn, Pa.; order to be placed this week.

Gantry crane for New York Central railroad for installation at Rochester, N. Y.; bids closed April 27.

10-ton caterpillar crane for city of Chicago; bids asked.

Cleveland, April 27.—Sales of machine tools have declined in the last week and reduces activity to a level which is the lowest in several months. The sharp curtailment of purchasing by the automobile industry is making itself felt. Thus, general industry and railroads are providing the bulk of the trade. Manufacturers in this territory are operating at a more restricted rate and report sales for the month to be about one-fifth less than those for March. There is no feeling of discouragement in the business situation but it is the common belief that material improvement will come in two to three months. Sales of used tools are fair.

Cincinnati, April 27.—Better inquiry has put new life in the machine tool market in this district. During the week, several fair sized inquiries came out from the railroads and automobile manufacturers. While bookings were slightly better, they involved single machines for the most part. Orders for export have fallen off considerably in recent weeks. Conditions are uncertain, this being attributed to slowness of buyers in closing on inquiries. Indications are that most interests here will close the month with less business on their books than at the end of March. Used equipment is enjoying a better demand.

Chicago, April 27.—Activity in this market is fair and picking up, considering the fact that April usually sees some letdown. Because of lack of interest of large buyers, the month probably will average up below the past quarter, but should equal or exceed April last year. Punch presses are in good demand. Illinois Central railroad is expected to start buying immediately against its recent list, but the Santa Fe list is quiet. General industrial demand is good and well scattered, although mostly for single items. Deliveries are easing up somewhat in view of lighter plant operations. Crane business is vigorous. One builder reports bookings for April the largest for any month since 1919, and a first quarter 15 per cent better than the same period in 1925.

Dunn Metal Ceiling Co., New York, has increased its capital from $5000 to $20,000.

Warehouse

Demand Steady and Improving Slightly—April Totals Better Than in 1925—Prices Generally Firm at Quoted Levels

DEMAND for iron and steel products from warehouses is increasing. Better weather is reflected in building products demand. Prices generally are firm.

Jobbing demand in the New York Metropolitan district has undergone a sharp improvement. One warehouse reports the past week the best this year. Orders have been more numerous and have involved some unusually substantial tonnages. A revision has been made by one leading warehouse on boiler flanges which are being quoted at 55 and 5 off, as compared with 60 and 10 off by others.

Demands from the automotive industry have helped swell warehouse business at Philadelphia the past week. The general situation is good. Demand is about 90 per cent of the March average. Bars are selling below 3.00c only on limited portion of the tonnage. Prices are unchanged at Pittsburgh and demand is less than last week.

Buffalo warehouse sales have held steady throughout April. The month promises to show an improvement over March 1926 and April 1925.

Warehouse business at Cincinnati has improved slightly, but orders generally involve small quantities. Demand centers on structurals, plates and reinforcing bars.

Detroit warehouse demand is active and good business is looked for at least the better part of May. The automobile industry continues to purchase heavily of warehouse stocks. A falling off is expected before the end of May, when motor car production is scheduled to take a drop.

A slight shading in the price of sheets featured the iron and steel warehouse market at Chicago the past week. April is proving better than April last year, but probably will be less than last month. The recent good weather has stimulated warehouse sales. Prices are unchanged.

Cleveland jobbers are feeling effects of building trades union strikes. Several leading building supply houses have shut down and jobbers are unable to move out tonnage on orders.

Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.15c
Ft. Worth	3.90c
Los Angeles	3.20c
New York	3.24c
Philadelphia	3.00c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	4.06c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
Ft. Worth	3.90c
New York	3.24c
Philadelphia	3.00c to 3.20c
St. Louis	3.15c
Tulsa	4.06c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c
Cincinnati	3.30c
Cleveland	2.40c to 3.10c
Detroit	3.15c
Ft. Worth	3.75c
Los Angeles, C.L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	3.00c to 3.25c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.25c
Tulsa	4.06c
Youngstown	2.50c to 2.60c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.25c
Ft. Worth	4.50c
Los Angeles	3.20c
New York	3.34c
Philadelphia	2.70c to 3.05c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	4.16c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleveland, 3/16-inch	3.225c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Ft. Worth	4.50c
Los Angeles	3.20c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.70c to 3.20c
Philadelphia, 3/16-inch	2.85c to 3.15c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	4.16c

NO. 10 BLUE ANNEALED SHEETS

Boston 3/16-inch	3.915c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	3.75c
New York	3.89c
Portland	4.25c
Philadelphia	3.50c
San Francisco	3.75c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.56c

NO 28 BLACK SHEETS

Boston	5.25c
Buffalo	4.60c
Chicago	4.10c
Cincinnati	4.55c
Cleveland	4.10c
Detroit	4.25c
Ft. Worth	5.50c
Los Angeles	4.75c
New York	4.50c
Philadelphia	4.65c
Portland	5.25c
San Francisco	4.75c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.35c
Tulsa	5.16c

NO. 28 GALVANIZED SHEETS

Boston	6.25c
Buffalo	5.90c
Chicago	5.25c
Cincinnati	5.65c
Cleveland	5.25c
Detroit	5.50c
Ft. Worth	6.25c
Los Angeles (corr. 28 ga.)	6.00c
New York	5.65c
Philadelphia	5.85c
Portland	6.25c
San Francisco	6.00c
Seattle	6.50c
St. Louis	5.70c
St. Paul	5.60c
Tulsa	6.31c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.80c
Ft. Worth	4.65c
Los Angeles	4.05c
New York	3.99c
Philadelphia	3.75c to 3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.99c
Tulsa	4.71c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.65c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c to 4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.90c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100 inch, 500 lb. lots	6.30c
Buffalo	6.35c
Chicago	6.25c
Cincinnati	7.15c
Cleveland, over 500 lb. lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.25c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL

New York duty paid

Swedish, hollow drill steel	15.00c
Swedish iron bars round	6.75c
Flats and squares	7.00c

WELDED PIPE

Discounts from warehouse, New York City Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—28	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6-inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
⅛ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—1	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 6
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Coast Buying Is Small

Inquiry for Oil Tanks Causes Most Interest—Pig Iron Prices Lower from All Sources

LOS ANGELES, April 24—(*By Air Mail*)—Although activity is not as heavy as was anticipated at the start of the year, inquiries and sales are becoming more numerous. The structural shape market was the most active this week, several fair sized tonanges being awarded. Much interest is being displayed in the inquiry of the Union Oil Co. for oil storage tanks.

Pig Iron and Coke

Demand for pig iron and coke remains quiet and sales this week were small lots. Prices have been reduced $1 to $2 a ton. Columbia basic and foundry iron has been reduced from $27-$28 to $26-$27. Dutch and Belgian iron is down $2 a ton, while India and German iron is off 50 cents a ton.

Coast Pig Iron Prices

Utah basic	$26.00 to 27.00
Utah foundry	26.00 to 27.00
*English (2.75 to 3.25 sil.)	25.00
*German	23.50
*Belgium	22.00
*India	24.50
*Dutch	22.00
Anzan (Chinese) 2.50 to 3.50 sil. del. Seattle	25.50

*C.i.f. duty paid.

Bars, Plates and Shapes

Concrete bar awards this week aggregated over 400 tons. Badt-Falk Co. booked 100 tons for the West Portal school in San Francisco and Geo. L. Eastman took 150 tons for the Hauser Packing Co. in Los Angeles. The Southwest Portland Cement Co. awarded to a Coast mill 142 tons of flats, 30 tons of rounds and 125 tons of reinforcing bars. Prices in the Los Angeles district are the same as in the San Francisco district. Less than carload lots are being quoted at 3.20c, carload lots at 2.95c and lots of 250 tons or more at 2.85c. Pending business calls for a fair total.

The only plate award of size this week was taken by the Los Angeles Shipbuilding & Drydock Co. and involved 270 tons of plates and shapes for a barge for the Associated Oil Co., Los Angeles. Interest continues to center around the Union Oil Co. oil storage tank inquiry. It is not definately known whether the company will buy all of the 85 tanks at this time. It is understood that at least twelve 80,000-barrel tanks will be purchased immediately. Pending business exceeds 30,000 tons. New inquiries of the week call for 1000 tons for a pipe line at La Mesa, Calif. and 400 tons for a pipe line at Roseville, Calif. Prices continue unchanged at 2.25c c.i.f. for large lots and 2.30c shapes is noted. Awards this week for the usual run of the market.

Increased demand for structural totaled over 1200 tons. The largest award involved 410 tons for an armory roof in San Francisco, taken by Schraders Iron Works. Pending business aggregates over 14,000 tons. New inquiries include 650 tons for the City garage, Los Angeles, 600 tons for the Multnomah stadium, Portland, Ore. and 450 tons for three bridges for the highway commission, Portland. Prices are firm at 2.35c c.i.f.

Other Finished Material

While no awards of importance were noted this week in cast iron pipe, two new inquiries are out. Pasadena is in the market for about 1800 tons and Santa Ana, Calif. will open bids May 3 for 200 tons. Pending business totals over 5900 tons.

No large inquiries for sheets are current this week. Consumers for the most part have fair sized stocks on hand and buying usually is confined to small lots. The market appears firm at 2.50c, 3.35c and 4.60c base Pittsburgh on blue annealed, black and galvanized sheets respectively.

Out-of-stock distributors report increased demand since the first of the month and expect April sales will be the biggest of any month this year. Prices continue unchanged and are firm.

Movement of heavy melting steel is sluggish. Quotations range around $10 a ton delivered mill.

Superior Pays Dividend

Directors of the Superior Steel Corp., Pittsburgh and Carnegie, Pa., have declared a dividend of 50 cents per share payable June 1, 1926, to stockholders of record May 15, 1926. This is the first dividend action in a number of years.

Virginia Iron Has Loss

A net loss of $10,017, after interest and other charges was reported for the first quarter of this year by the Virginia Iron, Coal & Coke Co. This contrasts with a net gain of $9752, a share on $2,500,000 preferred stock and with $217,306, after preferred dividends, in the first quarter of 1925.

M. A. Hanna Cuts Loss

The M. A. Hanna Co., Cleveland, in its report for the first quarter of 1925 shows a reduction in operating loss compared with one year before. Net income before funded debt interest, depreciation and federal taxes, totaled $306,715 during the period compared with a deficit of $102,687 for the corresponding period one year before. After deducting all charges a deficit of $47,529 was shown against a loss of $413,647 during the first quarter of 1925.

Pig Iron Market Quiet; Prices Steady

(*Concluded from Page* 1133)

lowered their quotation to meet the market. Sales of silvery iron have shown a slight increase since the recent $1 a ton reduction. Alabama iron is quoted at $22, and Tennessee iron at $21, Birmingham.

Chicago, April 27.—Both buying and shipments of northern pig iron are relatively better than reports of a tapering off in the melt would indicate. One important selling interest expects April to wind up at least the equivalent of March, and perhaps superior to it, in both of these aspects. Southern Michigan and northern Indiana have produced more inquiries than the Milwaukee and Chicago districts the past few days. Inquiries for 500 and 1000 tons each of No. 2 foundry have come from two Southern Michigan stovemakers. Quite a few orders for 100 to 300 tons have been placed by northern Indiana melters. Foundries on Ford work reflect the slackening schedule of this maker. Northern No. 2 foundry and malleable iron are holding at $22. Chicago furnace. Resale iron offerings are negligible compared with the total merchant iron moving. The active list is unchanged at eight out of 10 stacks in this district. The Thomas stack at Milwaukee is being relined following repairs to its stoves and May 15 is now set as the date for relighting. None of the special irons has been in heavy demand but prices are unchanged.

St. Louis, April 27.—Pig iron melters are holding off, mainly on account of uncertainty relative to prospective demand for their products during the next few months. Price uncertainty also is a factor, although the belief prevails that present levels will not be lowered much during the first half of the year. Furnaces are anxious to place tonnage, and the backward buying is giving rise to sharp competition. The lowering of prices on the higher silicons has failed to stimulate buying. Sales reported in the past week total approximately 700 tons. Quotably prices remained unchanged, but sales have been made at concessions.

Birmingham, Ala., April 26.—Large consumers of pig iron in this district are defining purchases. Alabama furnace interests continue to quote $22 for No. 2 foundry but are not selling much tonnage. The past week saw a slight improvement in total of sales.

World Trade

Up to Prewar Levels, Says Farrell—Convention Opens in Charleston

World trade has practically recovered its prewar volume, but world-wide depression in the shipping business persists, said James A. Farrell, president, United States Steel Corp., in opening the thirteenth national foreign trade convention in Charleston, S. C., Wednesday, April 28. As chairman of the National Foreign Trade council, Mr. Farrell has been its chief spokesman at its trade conventions for many years. He said:

"The figures of 33 exporting nations, not including the United States, for the last fiscal year, showed them to be within 7 per cent of their prewar volume of trade. The United States and Canada alone of all the trading nations have made a substantial increase over their prewar status. If our figures are included in this calculation, the world as a whole is shown to be only 2 per cent under its prewar volume at the close of the last fiscal year. There are some indications that this deficiency will be more than recovered in the current year. One such indication, of special significance, is the increased volume of raw material imports, both by the United States and by several of the industrial nations of Europe. That, of course, evidences an impending increase of production, and consequently of consuming power.

"There is an illuminating fact in the figures of raw material exports. It is that unmanufactured cotton constituted more than three-fourths of that group. It furnished 22 per cent of our total exports, and stands first in the list of commodities exported, all other raw materials combined furnished only 7 per cent of our total exports.

"Contrasting with this export showing is our import of materials for industry, crude and semifinished. They were 58½ per cent of our total imports. To such an extent has our industrial establishment as a whole developed, that it is dependent, for the fulfillment of the fundamental condition of prosperity, occupation, upon a steady inflow of raw materials from foreign sources, aggregating at least $2,000,000,000 a year in value, and constituting three fifths of our total imports. Curtailment of such supplies, or abnormal prices for them, inevitably affect industrial activity in all countries and, in this connection, it is realized that national trade is the basis of national livelihood.

Eaton Sees Good Business Ahead in Steel

Good business in the steel industry is predicted by C. S. Eaton, Cleveland Chairman, of the Trumbull steel Co., Warren, O., in a statement following the recent meeting of the Trumbull Steel Co., board of directors. Net earnings of the company for the first quarter of 1926 after all charges other than federal taxes were $553,520, equivalent to more than three times the preferred dividends for the quarter. This report does not include the earnings of the Liberty Steel Co., nor of the Trumbull Cliffs Furnace Co. The former earned about $50,000 in the first quarter and the Furnace company profited about $120,000.

The statement shows an increase of the company's cash position as of April 1, of $1,300,000 compared with Dec. 31 and a write off of $800,000 in holdings of other companies. The statement shows depreciation charged at the rate of $70,000 per month. The company has $8,277,890 in working capital with current assets in 5 to 1 ratio to current liabilities.

Buy Control of Nugent Steel Castings Co.

W. C. Frye and C. R. Messinger of Milwaukee and W. J. Nugent of Chicago have purchased the interests of Charles Piez, chairman of Link-Belt Co., and Prentiss Coonley, of the Walworth Co., in the Nugent Steel Castings Co., Milwaukee. Mr. Frye and Mr. Messinger, with Mr. Piez and Mr. Coonley were the principal organizers of the Nugent company. Mr. Frye was president of the Chain Belt Co., Milwaukee, until about 2½ years ago. He is a director of the Chain Belt Co., the Sivyer Steel Castings Co., and the Federal Malleable Co., Milwaukee.

W. J. Nugent became vice president in 1918 of the Electric Steel Co. and in 1921 was made general manager. When Mr. Piez retired last year he was made president. He has been connected at various times with the American Steel Foundries, Chicago, the Sivyer Steel Castings Co., and with the Ohio Steel Foundry Co., Springfield, O.

Mr. Messinger formerly was president and now is a director of the American Foundrymen's association. He is president of the Chain Belt Co. and Interstate Drop Forge Co., vice president of the Sivyer Steel Castings Co. and the Federal Malleable Co., Milwaukee.

The Nugent company was started in 1916 as the Electric Steel Co., changing to the present name in 1923. In addition to Mr. Nugent, Mr. Frye and Mr. Messinger, the directors are C. F. Messinger, J. M. Olmsted and C. A. MacDonald. Mr. Nugent is president, Harold C. Osman, secretary, and Mr. MacDonald, treasurer.

Steel Corporation

Puts Common Stock on 7 Per Cent Annual Dividend Basis

With earnings for the first quarter on the highest level of any three months since the first quarter of 1924, the United States Steel Corp. Tuesday announced that the dividend on its common stock had been placed upon a 7 per cent annual basis. The corporation previously had been paying a regular dividend of $1.25 a share quarterly and 50 cents extra. According to Chairman E. H. Gary the dividend action was taken at the suggestion of Director J. Pierpont Morgan. Judge Gary described the business outlook as good. Earnings of the company in March were $16,865,755 compared with $11,385,381 in February and $14,498,133 in March 1925. After dividends the surplus for the quarter was $10,874,745 compared with $6,005,079 in the corresponding quarter of 1925. The comparative income account follows:

	First quarter 1926	Fourth quarter 1925*	First quarter 1925
January	$13,810,149	$14,591,975	$13,027,058
February	11,385,381	14,210,992	12,357,801
March	16,865,755	13,477,498	14,498,133
Net earnings	45,061,285	42,280,465	39,882,992
Depreciation, sinking fund	14,317,715	14,182,843	13,848,770
Bond int. and premium	4,668,613	4,685,489	4,828,931
Adjustments..	.....	122,041	.....
Net income ..	26,074,959	23,534,174	21,205,291
Dividends:			
Preferred ..	6,304,919	6,304,919	6,304,919
Common ..	8,895,293	6,353,781	6,353,781
Com. extra	.....	2,541,512	2,541,512
Surplus	10,874,745	8,333,960	6,005,079

*October, November and December in fourth quarter, 1925.

At the meeting of the board of directors John Hulst, former assistant vice president and chief engineer, was elected vice president, succeeding John Reis, resigned.

Steel's Outlook Is Good Says Mr. Topping

Earnings of the Republic Iron & Steel Co., are satisfactory, future prospects are encouraging and stock market conditions have not adversely affected the company's business. These are the statements made by Chairman John A. Topping at the recent annual meeting of the stockholders of the company.

"In fact", Mr. Topping said, "March business showed a daily average increase over the preceding month of close to 10 per cent and the prospects for April suggest a volume of business in excess of the total for March. Recent weather conditions however, have been unfavorable and in consequence new construction was retarded. On the other hand, crop prospects are favorable for the season and in the event of fair harvest a normal volume of business should be realized."

Fire Broadside at Foreign Iron

American Producers in Tariff Hearing Show How European and Indian Furnace Interests Have Raided Domestic Markets—Inquiry at Washington Concluded—Decision Awaits Filing of Briefs

WASHINGTON, April 27.—Merchant pig iron furnace interests are preparing briefs to be filed with the United States tariff commission as the next step in the proceedings to gain a higher rate of duty on pig iron imported into the United States from foreign countries. These briefs must be filed with the commission by May 5.

The hearing on the application of the eastern furnace interests for relief under section 315 of the 1922 tariff law, known as the flexible provisions, was concluded April 20.

Witnesses at the hearing said foreign iron may be expected to continue to compete in the domestic market. It is believed, however, that the decision of the treasury department last week to impose a countervailing duty on pig iron exported to the United States by the Tata Iron & Steel Co., of Calcutta, will bar importations from British India. The rate of the countervailing or "bounty" duty has not been fixed.

Alfred P. Dennis, vice chairman of the tariff commission, asked witnesses at the hearing April 20 for their opinions as to the possibilities of domestic competition through the formation of foreign cartels or syndicates, particularly concerning products from France, Luxemburg and Belgium. The view was that other countries besides India will continue to compete in the United States market.

Frank B. Richards, M. A. Hanna & Co., Cleveland, and one of the spokesmen for the American Pig Iron association at the hearing, pointed out that the commission's preliminary report has covered adequately the situation with regard to costs of imported and domestic iron.

He pointed out that the importation of foreign iron presents a vital problem to all pig iron producers, each independent furnace being affected by every ton of foreign iron coming into the domestic market. He showed that some iron from the Tata Iron & Steel Co. penetrates the American markets in the East and as far west as Cincinnati.

John W. Logan, Alan Wood Iron & Steel Co., Philadelphia, declared that the displacement of domestic iron by foreign concerns affects about 35 per cent of the domestic production, or that produced by the American merchant furnaces. He thought the maximum postwar production of British Indian iron was 882,000 tons from 10 furnaces, although the tariff commission's report gave the figure as 593,290 tons.

He stated that in recent years of heavy imports, the proportion of total merchant iron imported to total production in the districts most affected probably has been 9 to 12 per cent. Of the foundry iron alone, the ratio of imports to production was about 21 per cent. He stated that imported iron can be warehoused, for instance, at Philadelphia for 35 days at $12 a car, while the domestic demurrage cost for the same length of time would approximate $150 a car.

Prefer Domestic Iron

Robert C. Lea, Robesonia Iron Co., Philadelphia, declared that consumers still prefer domestic iron to foreign, although little difference exists in quality of these products. He pointed out that in prewar years the average sales of imported iron amounted only to about 2 per cent of all sales in the eastern market, while in postwar years, the proportion has advanced to 20 per cent. The merchant furnaces, he declared, provided 1,000,000 tons before the war. Since the war the total reached only 700,000 tons, the difference being accounted for almost entirely by the foreign imports. In the so-called Atlantic district, Mr. Lea said, where 42 furnaces exist, only about nine or 10 furnaces now are in operation. This particular district was described as being west of the seaboard to Harrisburg, south as far as Chester, Pa., and north to Hokendauqua, Pa.

It was stated by the witness that foreign iron in the eastern district always is obtainable at less than the domestic price, no matter how low the latter is quoted, British Indian iron particularly prevailing in the foreign offerings. The average import sales in prewar years were given as 30,000 tons for that district, while in the postwar years from 1922, the average import sales approximated 351,000 tons.

Indian iron, it was pointed out, is a strong competitor, largely because of the low labor costs which do not exceed 20 cents daily.

Leon Thomas, president, Thomas Iron Co., Hokendauqua, Pa., pointed out the efforts made by merchant furnace operators to meet competition from foreign iron. In reply to a question by Commissioner Dennis as to whether the merchant furnace industry may be overdeveloped, as is the copper industry, Mr. Thomas said that overproduction has developed in some sections.

Leonard Peckitt, president, Replogle Steel Co., cited some sales of German pig iron laid down in New Jersey at $20.95 a ton, which he said is far below what domestic producers can do profitably on foundry iron. He stated that while it has not been done generally, his company has gone into the market and purchased some German and some Indian iron for its pipe works, adding that his company has banked several of its furnaces to purchase iron in the open market.

W. S. Rogers, Rogers, Brown Iron Co., Buffalo, pointed out that Buffalo necessarily has had to go farther west for markets since the increase in the importation of foreign irons. He stated that Buffalo interests must ship by water to Chicago and to northern Indiana, and to northern Michigan by rail. Shipments of iron from his territory to New England dropped from 22 per cent of the market in 1919 to 10.7 per cent last year. He said the cost to get iron into some of the markets that have been lost are as great as laying down the iron from Calcutta in the same territory.

Ralph H. Sweetser, American Rolling Mill Co., speaking for the Southern Ohio Pig Iron and Coke association, said inland markets are being displaced steadily by lake furnace iron and indirectly by foreign iron, which has caused Buffalo, Pittsburgh, Cleveland and other Middle West furnace districts to extend their market boundary lines. He saw the possibility of higher ore as the result of the foreign iron imports.

C. A. Bertie, Virginia Iron, Coal & Coke Co., approved the report of the tariff commission, and gave his opinion that little could be added to the showing made in that document concerning the relative costs of production of foreign and domestic iron. Julian B. Greenstreet, general superintendent, Olney Foundry Co., Philadelphia, declared foreign iron is of no better quality than domestic iron.

Electrochemists Study Melting

Symposium on Relative Merits of Electric and Fuel Fired Furnaces Conducted at Annual Meeting of American Electrochemical Society in Chicago Proves Attractive Feature—New Officers Are Elected

AROUND table discussion, devoted to the subject of comparative merits of electric and fuel-fired furnaces attracted about 125 interested individuals and company representatives to a luncheon held during the spring meeting of the American Electrochemical society in Chicago, April 22-24. W. J. Priestley, Electro Metallurgical Sales Corp., New York, who presided at this session, introduced various representatives of electric melting furnaces who spoke on the performance of this type of furnace in making steel and gray iron.

One maker of large electric furnaces described the introduction of dual or three-step voltage regulation, which provides a high input during melting down and a reduction in the latter stages during the refining operation. This is said to reduce refractory losses, since the maintenance of the longer arc after the bath is formed increases the radiation effect upon the walls and roof of the furnace. With three-step voltage reduction, a 6-ton furnace was reported as having completed a heat of 17,000 pounds in 1½ hours, against 2½ hours when the lower rate of input was maintained throughout operation.

The tremendous growth of electric furnace melting was reflected in the remarks of a maker of small, foundry-type furnaces, who reported the first unit installed in this country about 1909, with 19 in service four years later, 40 active in two more years and more than 450 now melting steel or gray iron throughout the country. It was emphasized that the electric furnace is not a competitor of the cupola for foundry melting of gray iron, but where quality governs, the electric unit is recommended. In making comparisons, the basis of cost in terms of final product was emphasized.

Fields Are Distinct

As between the electric furnace and the open-hearth furnace, one alloy producer emphasized the question of quantity of finished steel, opposing effort to strike a universal balance. He pointed to the fields in which each type is bound to maintain its supremacy. The question of the probable effect of the arc upon the quality of metal produced, particularly where the current is supplied at voltages as high as 220 or more, was raised. An electric furnace representative reported two 12-ton furnaces operating on steel ingots for war service, where the rejections on metal reduced at high voltage were 5 per cent against four times that amount on ingots poured from metal melted at a lower rate. He did not infer from this that the high voltage practice was responsible for superior quality, but rather that the arc effect is negligible.

The electric furnace was commended on the score of flexibility, its ability to deoxidize or de-gasify steel. The probable effect of nitrogen absorption in electric furnace steel was discounted by an experimenter who studied the question. A furnace operator from the west coast reported the ability to make gray iron synthetically in the electric furnace cheaper than it could be produced from pig iron melted in the cupola. Further, the ability to change the character of the charge, making first iron, then semi-steel, manganese and chromium steel from the same scrap pile was affirmed. The state of the graphitic carbon in electrically melted gray iron was described by one speaker as being emulsified to a greater degree than in the cupola metal. For this reason it was stated that the electric iron machined more steadily, was tougher and more resilient than cupola iron.

Discussion of various types of heat treating furnaces elicited some heated controversy. The experience of various automobile builders with electric units was quoted as showing a reduction of rejections for defects in heat treating to a minimum. One Detroit interest was said to have installed electric and fuel-fired furnaces in duplicate rooms to study the effect upon the workmen of the temperature in the two shops due to radiated heat from the two styles of units, with the result that the electrically equipped room gave 79 degrees Fahr. against 121 degrees in the room employing fuel-fired ovens.

Superiority Is Challenged

Representatives of gas companies challenged the superiority claimed for electric heat treating furnaces, although stating that in engineering development, the former had shown the greater initiative. It was stated that the installations of electric heat treating equipment at present are in excess of 1,500,000 kilowatts capacity or about a tenth of the total electric motor capacity in the country.

The technical sesions of the society held Thursday, Friday and Saturday, were devoted to various phases of the chemistry of chlorine, problems of electrodeposition and the protection of ferrous metals from corrosion. At the business session held Saturday morning, the result of the mail ballot for officers was announced. Executives for the coming year are shown in the accompanying box. A resolution was adopted unanimously, calling upon congress to advance the annual salaries of federal judges, it being the belief that those who attain proficiency are so poorly paid that attractions of other fields lead them to resign from the judiciary, with a deleterious effect upon patent decisions in which members of the society are interested.

Dr. Edward Weston, Western Electrical Instrument Co., Newark, N. J., was elected to honorary membership in consideration of his services to the society and to industry. Harry M. Williams, General Motors Research Corp. Dayton, O. was chosen chairman of the electrothermic division of the society and H. W. Gillett, bureau of standards, Washington was elected vice chairman.

New Officers

AMERICAN ELECTROCHEMICAL SOCIETY

President
WILLIAM BLUM
Bureau of standards, Washington

Vice Presidents
PAUL D. MERICA
International Nickel Co., New York
BRADLEY STOUGHTON
Lehigh university, Bethlehem, Pa.
OLIVER P. WATTS
University of Wisconsin, Madison, Wis.

Managers
WILLIAM G. HARVEY
American Magnesium Corp., Niagara Falls, N. Y.
B. D. SAKLATWALLA
Vanadium Corp. of America, Bridgeville, Pa.
GEORGE B. HOGABOOM
Bureau of standards, Washington

Treasurer
ACHESON SMITH
Acheson Graphite Co., Niagara Falls, N. Y.

Secretary
COLIN G. FINK
Columbia university, New York

Steel Exports Up; Imports Drop

March Receipts of Iron and Steel Products Decline to 93,107 Tons from 100,213 Tons in February—Shipments Total 169,438 Tons—Pig Iron Imports Continue Heavy—Iron Ore Receipts Heavier

MARCH iron and steel foreign trade showed a more favorable balance for the United States, exports increasing and imports dropping from the February totals, according to data just compiled by the iron and steel division of the department of commerce. March receipts totaled 93,107 tons compared with 100,213 tons in February, while shipments increased from 157,187 to 169,438 tons in the same period. Imports for the first quarter of 1926

IMPORTS AND EXPORTS

Gross Tons

	—1926—		—1925—	
	Imports	Exports	Imports	Exports
Jan.	79,067	174,585	77,105	141,777
Feb.	100,213	157,187	92,353	102,299
March	93,107	169,438	92,115	155,348
April			71,233	155,375
May			67,789	150,612
June			82,853	136,847
July			64,642	139,861
Aug.			68,489	188,465
Sept.			68,445	136,791
Oct.			80,045	141,817
Nov.			79,771	171,134
Dec.			98,400	142,209
Total	272,387	501,210	943,240	1,762,571

totaled 272,387 tons compared with 263,936 tons for the same period of 1925. Exports for the first three months of this year totaled 501,210 tons or considerably more than the 399,461 tons shipped in those months of 1925.

Pig iron imports continue to dominate receipts, totaling 54,825 tons in

IRON AND STEEL IMPORTS

Gross Tons

	—March—		Nine months ended March	
	1926	1925	1926	1925
Pig iron	54,825	50,803	373,629	234,983
Ferromanganese	4,141	5,021	45,756	50,186
Ferrosilicon	665	670	3,122	6,467
Scrap	2,523	4,755	67,148	70,556
Iron slabs	29	.....	.....	4,665
Steel ingots blooms, etc.	1,913	3,490	16,849	26,421
Steel bars	8,468	4,016	50,165	**9,415
Iron bars	527	1,178	5,381	.....
Wire rods	576	314	6,244	3,833
Hoops, band and scroll	1,592	.....	8,286	.....
Boiler and other plates	532	16	1,685	778
Sheets, skelp and saw plates	147	647	2,769	2,644
Tin plate	28	27	309	259
Structural shapes	5,627	7,003	50,885	40,106
Rails and splice bars	3,930	6,434	20,065	34,208
Cast iron pipe	2,718	.....	43,128	.....
Other pipe and tubes	2,864	†6,719	26,367	†34,973
Barbed wire	267	.....	5,545	.....
Round iron and steel wire	367	266	3,142	1,992
Steel telegraph and telephone wire	82	‡152	215	‡5,382
Flat wire and strip steel	272	234	2,298	1,343
Wire rope and strand	278	.....	1,281	.....
Wire cloth and screening	50	.....	319	.....
Other wire	141	.....	1,222	.....
Nails, tacks and staples	275	111	3,010	386
Bolts, nuts, rivets, etc.	72	16	256	110
Castings and forgings	198	238	2,451	1,823
Total	93,107	92,110	739,660	530,530

*Not listed as such prior to Jan. 1, 1926. **Steel bars reported separately from Jan. 1, 1925.

†Formerly classified as tubular products, now segregated so as to show cast iron pipe and other pipe and tubes; latter includes welded pipe or jointed pipe, electrical conduits, ball bearing and other tubes. Cylindrical or tubular tanks and drums have been dropped, now being shown by value instead of quantity.

‡Listed as wire rope and insulated wire prior to Jan. 1, 1926. Hoops, bands and scroll includes cotton ties.

Other wire now includes covered or insulated wire, corset and dress steel and galvanized fencing wire.

EXPORTS OF IRON AND STEEL

Gross Tons

	March		Nine months ended March	
	1926	1925	1926	1925
Pig iron, not including ferroalloys	1,489	2,037	4,380	23,108
Ferromanganese and spiegeleisen	6	1,026	976	3,177
Scrap	10,326	3,414	19,755	35,846
Ingots, blooms, billets, etc.	3,239	6,308	7,990	71,880
Iron bars	280	625	868	3,057
Steel bars	13,622	12,589	33,926	71,023
Alloy steel bars	751	839	1,059	2,414
Wire rods	2,811	1,643	5,483	13,116
Plates	13,250	11,240	29,832	54,998
Galvanized sheets	15,751	13,047	44,218	113,290
Black steel sheets	14,203	6,264	26,437	84,192
Black iron sheets	2,282	1,334	5,952	8,809
Hoops, bands and strip steel	6,173	4,195	11,566	23,814
Tin plate, terne plate, etc.	15,500	14,424	36,210	104,553
Structural shapes, plain	13,408	6,741	29,820	76,155
Structural, fabricated	7,639	5,907	17,045	50,441
Metal lath	526	277	887	1,816
Steel rails	7,113	18,709	105,520	136,620
Rail fastenings, switches, frogs etc.	2,851	2,496	30,825	21,493
Boiler tubes and welded pipe	19,406	18,084	193,392	129,154
Malleable iron pipe fittings	872	949	2,314	7,807
Cast iron pipe fittings	800	417	1,545	5,169
Cast iron pressure pipe and fittings	356	1,216	1,818	9,177
Cast iron soil pipe and fittings	352	1,457	1,764	7,925
Plain wire	3,813	3,959	8,540	22,140
Barbed wire and woven wire fencing	4,905	7,699	13,057	66,124
Wire cloth and screening	110	121	405	1,005
Wire rope	507	419	1,288	3,362
Insulated wire and cable	125	84	181	557
Other wire	821	837	2,068	7,555
Wire nails	1,148	818	2,666	7,566
Other nails	693	912	1,768	6,463
Tacks	93	..	199	..
Horseshoes	41	46	218	613
Bolts, nuts, rivets, etc., except track	1,106	1,511	3,274	12,964
Car wheels and axles	760	2,068	12,830	16,311
Iron castings	745	775	7,751	6,405
Steel castings	1,208	691	3,793	3,907
Forgings	357	400	1,787	1,412
Total	169,438	155,348	1,421,494	1,222,648

DESTINATION OF IRON AND STEEL EXPORTS

Gross Tons

Countries	Rails	Galvanized sheets	Plates not fabricated	Tin terne plate	Steel sheets black	Barbed wire	Steel bars	Steel scrap
Argentina	.....	959	.....	402	.....	621	.....	.....
Australia	.....	.....	171	.....	112	.....	350	.....
Brazil	130	883	.....	.....	.....	252	.....	.....
British India	.....	1,811	.....	.....	.....	.....	.....	.....
British S. Africa	.....	.....	.....	.....	.....	165	.....	.....
British Malaya	.....	768	.....	.....	.....	.....	.....	.....
Canada	2,235	4,052	12,028	3,538	5,724	852	9,236	6,289
Chile	346	501	.....	926	163	.....	388	.....
China	.....	.....	.....	682	.....	.....	331	348
Colombia	326	543	.....	.....	.....	476	.....	.....
Cuba	502	645	254	154	.....	109	189	.....
Central America	.....	427	.....	.....	.....	472	.....	.....
Egypt	.....	.....	.....	611	.....	.....	.....	.....
Greece	.....	.....	.....	412	.....	.....	.....	.....
France	.....	.....	.....	.....	172	.....	.....	.....
Germany	.....	.....	.....	.....	.....	.....	.....	340
Hong Kong	.....	.....	.....	.....	.....	.....	.....	149
Italy	.....	.....	.....	2,494	.....	.....	.....	1,506
Japan	2,227	234	.....	3,376	7,492	.....	140	1,522
Mexico	68	880	58	475	.....	419	745	.....
Europe	.....	499	.....	.....	.....	.....	.....	.....
Other Europe	.....	.....	.....	306	76	.....	.....	.....
Other countries	389	1,070	249	1,161	464	669	796	.....
Panama	.....	.....	163	.....	.....	.....	.....	.....
Other S. America	427	.....	.....	.....	.....	.....	.....	.....
Peru	.....	252	259	.....	.....	.....	106	.....
Philippine Islands	.....	1,901	.....	262	.....	575	179	.....
Turkey-in-Europe	.....	.....	.....	451	.....	.....	.....	.....
United Kingdom	.....	.....	.....	250	.....	.....	1,162	172
Venezuela	.....	326	.....	.....	.....	.....	.....	.....
Portugal	275	.....	.....	.....	.....	.....	.....	.....
Total	7,113	15,751	13,182	15,500	14,203	4,620	13,622	10,326

March or slightly under the February amount of 59,122 tons. Germany, British India and United Kingdom were the heaviest shippers. First quarter imports of pig iron total 162,370 tons compared with 139,950 tons in that period of last year.

Ferromanganese imports dropped from 4934 to 4141 tons in the Feb-

(*Concluded on Page* 1163)

Exports of Iron and Steel Products from 1900-1925

Gross Tons

PRODUCT	Fiscal Year Ending June 30									Calendar Year			
	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913
Pig iron, no alloys													
Ferromanganese	255,253	54,704	18,198	34,635	56,971	59,509	85,000	52,518	50,178	79,771	120,799	272,676	277,648
Ferrosilicon													
Scrap	32,770	13,496	6,043	16,845	19,710	10,241	22,152	20,518	29,029	18,448	77,918	105,965	97,429
Ingots, blooms, etc.	121,136	2,907	2,127	176,961	236,155	273,272	113,866	92,893	109,331	51,554	234,267	294,818	91,847
Iron bars	23,715	20,121	18,118	22,669	32,323	42,719	41,484	13,065	11,625	16,041	17,683	21,926	1,662
Steel bars	76,425	15,579	13,593	21,446	24,167	22,606	52,300	63,128	52,668	90,506	123,349	208,213	211,716
Alloy steel bars													
Wire rods	9,177	12,253	31,857	15,781	15,738	6,482	10,250	6,534	12,715	24,942	22,641	64,978	61,637
Boiler plate													
Other plate, not fabr.													223,814
Skelp													
Galvanized sheets	56,716	16,977	17,041	25,080	76,548	88,828	128,816	102,531	137,889	235,052	372,372	546,521	77,210
Black steel sheets													140,634
Black iron sheets													21,767
Strip steel, cold rolled													
Hoops, bands, etc.	3,678	1,741	1,670	2,839	3,029	5,042	5,886	8,560	3,448	5,239	*	12,557	16,841
Tin plate	610	1,074	694	3,620	10,264	11,592	8,881	15,010	5,094	11,682	61,381	81,694	57,812
Struct. shapes, plain													
Struct. shapes, fabr.													
Metal lath	64,820	61,190	39,952	35,884	73,287	97,668	125,132	134,299	101,653	120,228	223,493	288,164	403,264
Other struct. shapes													
Ship and tank plates													
Rails, 50 pounds and over	374,978	167,456	22,977	162,407	409,507	345,826	291,322	278,867	234,128	369,578	420,874	446,473	460,553
Railroad spikes	(Included in "Other Rails" prior to 1913)												11,329
Rails, under 50 pounds													
Boiler tubes													
Casing and oil line pipe													
Welded black pipe													
Welded galvan. pipe	(Only values given for these years.)					147,497	128,579	168,591	129,444	163,777	197,507	249,856	301,790
M. I. S. pipe fittings													
C. I. S. pipe fittings													
C. I. Press. Pipe and fitts.													
C. I. Soil Pipe and fittings													
Barbed wire									67,299	75,021	96,754	96,059	82,051
Plain wire													
Galvanized wire													
Woven wire fencing	73,609	99,641	100,068	113,856	126,190	164,253	161,241	156,960					
Wire cloth and screening									73,270	80,977	133,008	148,653	108,234
Wire rope													
Insulated wire and cable													
Other wire and mfgrs. of													
Cut nails	11,586	6,815	7,201	9,575	9,101	6,887	7,871	6,481	8,014	8,817	11,422	9,311	3,790
Wire nails	19,916	20,722	28,124	32,432	36,856	44,572	39,953	35,541	26,784	36,398	53,614	68,319	43,637
Horseshoe nails	1,821	1,834	2,480	2,560	3,739	4,333	7,512	5,774	6,670	8,365	12,848	15,005	3,969
Other nails and tacks													
Ordinary bolts, nuts, etc.													22,737
Horseshoes													1,247
Total	1,126,210	496,510	310,143	676,590	1,133,585	1,331,327	1,230,245	1,161,270	1,059,239	1,396,396	2,179,930	2,931,188	2,722,618

*In "Miscellaneous" for 1911.

PRODUCT	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
Pig iron, no alloys					261,891	316,718	212,742	27,249	30,920	32,318	41,483	32,674
Ferromanganese	114,423	224,509	607,236	656,220	3,577	2,999	3,454	690	1,396	4,295	3,165	5,496
Ferrosilicon					4,107	1,544	632	368	689	814	775	(not shown)
Scrap	33,134	79,361	212,765	145,574	2,160	27,275	219,230	37,592	64,784	65,980	97,748	82,573
Ingots, blooms, etc.	50,496	560,704	1,504,562	2,017,113	1,786,189	258,424	216,873	10,171	15,687	7,352	4,835	4,271
Iron bars	5,226	39,740	74,069	56,332	63,367	60,547	46,628	12,339	8,479	12,662	5,054	4,615
Steel bars	123,009	425,678	774,455	626,466	579,249	554,212	629,051	188,463	171,356	158,319	99,534	111,948
Alloy steel bars									5,418	2,148	2,742	3,691
Wire rods	61,857	165,014	158,284	181,974	148,523	118,010	116,775	18,953	40,424	40,868	18,762	21,203
Boiler plate									12,370	13,087	3,362	4,350
Other plate, not fabricated	111,642	223,806	276,034	525,670	551,967	710,013	920,959	335,868	88,617	102,376	81,686	100,100
Skelp									91,647	104,529	91,320	83,207
Galvanized sheets	40,463	75,906	85,304	86,487	68,742	101,638	108,368	56,085	109,321	114,750	108,152	160,270
Black steel sheets	120,436	94,349	107,721	157,354	163,421	177,467	169,244	193,433	214,916	139,105	148,742	95,431
Black iron sheets	7,555	25,543	46,499	62,238	40,756	39,892	32,157	12,415	11,693	14,158	11,005	14,768
Strip steel, cold rolled									5,291	11,473	9,372	12,240
Hoops, bands, etc.	9,954	29,250	43,208	58,769	50,673	53,836	53,449	20,274	29,221	26,772	24,769	28,693
Tinplate	59,549	154,642	227,391	232,799	258,538	204,521	226,410	107,714	76,633	124,499	160,997	161,383
Structural shapes, plain									123,445	122,062	102,408	104,339
Structural shapes, fabr.					232,729	360,787	493,633	297,022	21,984	33,663	19,864	20,773
Metal lath	182,395	232,139	300,594	294,150					22,156	1,493	2,166	3,441
Other structural shapes										41,803	43,329	40,697
Ship and tank plates					29,250	13,688	42,829	9,570	2,501	2,930	7,593	11,990
Rails, 50 pounds and over	174,680	391,379	540,828	512,669	453,537	652,443	594,628	321,822	246,700	239,364	190,334	137,542
Rails, under 50 pounds									30,390	28,045	18,162	14,148
Splice bars									21,760	22,744	18,750	18,977
Switches, frogs, etc.									6,316	5,686	7,135	6,526
Railroad spikes	6,915	13,256	23,852	21,189	9,969	24,771	16,601	8,164	7,895	8,598	7,986	7,725
Railroad bolts, nuts, etc.									2,327	2,562	2,098	2,139
Boiler tubes									12,073	16,518	12,363	13,861
Casing and oil line pipe									51,726	64,118	87,383	107,416
Welded black pipe		129,966	158,350	127,191	89,982	236,080	284,771	345,276	75,073	76,591	64,964	68,879
Welded galvanized pipe	199,622								32,519	28,681	36,241	39,630
M. I. S. pipe fittings									7,848	7,748	11,024	9,884
C. I. S. pipe fittings									70	12,757	7,975	6,724
Cast iron press. pipe and fit		47,022	70,223	77,528	55,961	39,455	68,417	48,524	18,001	15,308	13,364	15,408
Cast iron soil pipe and fit.											7,432	10,061
Barbed wire	93,847	248,611	418,882	193,471	235,083	101,451	129,710	29,796	70,828	70,803	87,033	67,408
Plain wire									35,959	38,552	17,911	17,046
Galvanized wire									77,192	53,680	19,136	18,550
Woven wire fencing									2,794	4,043	3,411	3,708
Wire cloth and screening	87,022	224,972	264,142	201,474	157,222	190,212	190,969	69,336	1,527	1,960	1,631	1,951
Wire rope									4,583	6,256	4,187	4,369
Insulated wire and cable									905	1,450	978	640
Other wire and mfgrs. of									15,880	14,572	11,225	8,372
Cut nails	3,423	4,236	4,752	4,525	3,824	2,921	3,858	1,094	3,509	2,300	2,122	1,616
Wire nails	36,124	91,584	150,173	114,913	78,726	89,779	93,178	28,109	55,021	45,981	21,665	9,837
Horseshoe nails	3,182	9,268	12,354	19,330	11,792	16,234	12,436	4,691	795	1,114	1,025	917
Other nails and tacks									4,053	5,346	4,739	6,696
Ordinary bolts, nuts, etc.	15,127	23,536	29,227	32,261	28,333	39,742	38,944	24,231	18,098	18,907	17,495	16,956
Iron castings									10,189	10,046	8,460	10,412
Steel castings	(Shown only by "number" prior to 1922.)								2,039	4,724	5,879	4,209
Car wheels and axles									17,556	20,291	22,329	19,936
Forgings									2,171	3,019	1,714	2,170
Horseshoes	5,903	15,863	7,806	8,403	2,857	3,385	1,834	615	988	951	963	706
Total	1,545,984	3,530,334	6,098,711	6,414,120	5,372,425	4,395,044	4,227,800	2,209,864	1,985,733	2,010,171	1,805,977	1,762,572

Attack Welding Specifications

American Welding Society and American Bureau of Welding in Annual Meeting in New York Urge Revision of Welding Specifications Suggested by Navy—Will Investigate Structural Steel Field

CRITICISMS of the suggested welding specifications which the United States navy recently sent out to all interested individuals, occupied much time at the meetings of the American Welding society and the American bureau of welding conducted at Hotel Astor, New York, April 21-23. It was pointed out that these suggested specifications, if adopted, would prohibit the use of alternating current in electric welding, that they would limit the use of gas welding to the welding of pipe and that they would prohibit both thermit and resistance welding. Various committees of the American Welding society reported on this point to the American bureau of welding. The latter took cognizance of these criticisms and its executive committee decided to get in immediate touch with the navy department in order that a meeting may be held for discussing the objections to the suggested specifications as now written.

It was learned at the meeting last week that the suggested specifications of the navy were never intended by their original framers for adoption as the general practice of the navy. It developed that these specifications were written only for application to certain construction work which the navy now has in hand. It was considered, therefore, that there should be comparatively little difficulty in persuading the navy to revise the suggested specifications so that the provisions will be based more equitably on the ability of the welding industry generally to serve in connection with navy work.

To Investigate Welding of Structural Steel

ANOTHER subject which received serious attention at the meeting last week was the status of welding in the structural steel industry. So prominent an authority as J. H. Edwards, assistant chief engineer, American Bridge Co., New York, frankly told the American bureau of welding that some of the statements and claims that have been advanced by the welding industry are odious. Welding men have contended, he said, that welded joints are stronger than riveted joints. They have gone so far as to tell him that welding improves the physical characteristics of the steel.

What the structural engineer wants, said Mr. Edwards, is not general statements or comparisons but actual information. He wants to know the unit stresses that a welded joint will sustain. He wants to know definitely what effect welding has on the strength of structural members. He wants to know how steel of the present average analyses behaves under welding as compared, for instance, with steels of higher carbons or steels containing alloys. He wants to know all the factors involved in welding steel of various thicknesses and in joints of various kinds. He wants to know the possible speed of building construction by welding. Mr. Edwards admitted that a considerable amount of research work is necessary to obtain the information of this kind and that getting it would involve a great deal of expense. However, the structural engineer knows all about rivets, their weak as well as their strong points, and he will not be eager to utilize welding instead of riveting until he has a great deal more information about the various factors in welding than now exists.

The American bureau of welding was quick to place a constructive valuation on Mr. Edwards' remarks. In fact, Mr. Edwards at once was appointed a member of the bureau's executive committee and the bureau announced that it would attack the problem of structural welding without delay. As a preliminary, it will approach the American Institute of Steel Construction, the American Society of Civil Engineers and other bodies involved, so that a definite program of procedure can be mapped out.

Steel in Bad Condition

Another expression on the inadequacy of the present information on welding was voiced by A. G. Pack, chief inspector of locomotives for the interstate commerce commission. He said flatly that the use of welding has not had uniform results on the railroads of the country. He told about a recent locomotive explosion which killed a number of people. Examination showed that the rupture had started at a spot adjoining a weld and that the steel was found to be in bad condition. Various members of the welding society told Mr. Pack that it is all a matter of training the welders. One speaker said that 50 per cent of the repairs never should be made as the material is in no condition for further use. Mr. Pack thought that until he could feel sure that welding was safe, and that the safety of the weld was something that did not depend entirely on the training and skill of each individual welder, he could not conscientiously encourage welding in connection with locomotive repairs.

The remarks by Mr. Pack and Mr. Edwards were of the same tenor as those of other speakers. In fact, there has not been a meeting of any scientific body in a long time which reflected less of a feeling of complacency than last week's meeting of the welding industry. There were numerous declarations to the effect that there are altogether too many unexplained phenomena in the art of welding. It was shown that the industry is confronted with the need for engaging in a tremendous amount of research work of various kinds. At the same time, there was a feeling that much progress is being made and that the welding industry has a great future.

"A quarter century ago a man would think twice before he sat under a slab of concrete," said one speaker. "Today we do that very thing without any misgivings whatever. The welding industry has a good start and, with hard work and patience, will reach its goal."

One outgrowth of the discussion of this character in the session of the gas welding committee was a decision, effective immediately, to set up this committee as an advisor on all problems involved in gas welding. Any

manufacturer in any part of the United States may submit any baffling problems to this committee and receive its advice. What this means may be best conveyed by saying that the membership of this committee, whose headquarters are at 29 West Thirty-ninth street, New York, comprises the foremost gas welding experts in the country.

Comfort A. Adams, director of the Bureau of Welding, went even further along the line of hastening the development of welding. He talked about offering prizes for beneficial results of research work, and about endowing scholarships to encourage students, under the direction of able instructions, to undertake research studies in welding. Several representatives of large companies pledged the support of their principals in efforts along these lines.

There was much discussion about what goes on in arc welding. It was stated that there is much trouble caused by the fact that welds made in a hydrogen atmosphere are more ductile than the base metal and the dielectrics involved were discussed. Many problems involving research were assigned to various members who are active in arc welding. One of these was the current and size of electrodes giving the best results in single-V, double-V, lap and strap welds. Another was in connection with the best type of preparation for the joint in a butt weld. Another concerned the effect of the position of welding. Another had to do with the effect of current on ductility for electrodes of various diameters.

Tells Of Ship Welding

An interesting feature was the discussion of further tests by W. L. Warner of the industrial engineering department of the General Electric Co. on a great many sample welds which were made during the war as part of the Emergency Fleet Corp.'s inquiry into the feasibility of welding steel ships. Mr. Warner's results indicated that in preparing for a single or double-V weld, the angle of bevel has little bearing on the tensile strength.

A development which is expected to result from the discussion at the meeting is the formation of a specification for standard tests of welds. It is thought that the test need not necessarily be tests to destruction. It was stated that there is a market in this country for a pull testing machine lighter than those now existing. It was said that there is a tendency to be somewhat skimpy in making tests and this is due to the expense now involved in making such tests. Overtures have been made to get manufacturers to make lighter testing machines than now can be had. Also, it was thought advisable to have the bureau of welding undertake arrangements whereby favorably located laboratories will make tests at considerably less than the present prices. A subject touched on was the welding of stainless steels which now are coming into more general use.

E. E. Thum read a paper by H. D. Edwards, works manager of the Carbide & Carbon Chemical Corp., which told about the welding of a lime-burning kiln, of skew hoppers for dust collecting systems, of pressure vessels, etc. By welding the hoppers, he said, great economies were effected as compared with the cost that would have been entailed in riveting. Welding, he said, saved more than half the draftsman's time on details, it saved 90 per cent of the time in the layout shop, it saved 75 per cent of the pattern expense on gates, it saved 18 per cent in the steel required and it eliminated operating troubles due to draft leakage.

L. J. Sforzini, Rochester, submitted a paper on the design of joints in piping installations. J. W. Owens, Newport News Shipbuilding & Dry Dock Co., read a paper on the design of joints in ship construction. S. W. Miller, Union Carbide & Carbon Research Laboratories, presented a paper on the design of welded joints with special reference to pressure vessels. L. H. Burkhart, Struthers-Wells Co., delivered a paper on the design of an arc-welded pressure vessel. A paper by A. C. Vick, Detroit Range Boiler & Steel Barrel Co., dealt with the design of welded joints for tanks and containers.

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Sheet Executives

Will Discuss Market Problems at Fourth Annual Meeting

Pittsburgh, April 26.—As arranged under the auspices of the National Association of Sheet and Tin Plate Manufacturers, the fourth annual meeting of sheet steel executives will be held at Hotel Greenbrier, White Sulphur Springs, W. Va., May 17 to 20. Sessions will commence at 9:30 a. m. and adjourn at 12.30 p. m., and the general topic for this convention is "Market Stability Through the Use of Trade Information and the force of Business Developments." The formal program follows:

Tuesday, May 18

1. Address—"The Sheet Steel Industry." How Can Reasonable Market Stability Be Effected? By W. S. Horner, president, National Association Sheet and Tin Plate Manufacturers, Pittsburgh.
2. Address—"The Fraternity of Business." C. E. Stuart, president, Central Steel Co., Massillon, O.
3. Address—"Wastefulness and Extravagance of Duplication in Industry." Severn P. Ker, president, Sharon Steel Hoop Co., Sharon, Pa.
4. Address—"The Romance of Business." Thomas D. McCloskey, general counsel, National Association of Sheet and Tin Plate Manufacturers, Pittsburgh.
5. Address—"Some Labor Problems Confronting the Sheet Steel Industry Today." Charles R. Hook, chairman labor committee, National Association Sheet and Tin Plate Manufacturers, Pittsburgh.

Wednesday, May 19

6. Address—"Awakening Sheet Steel Consciousness in Tomorrow's Men." C. L. Bailey, field representative, Sheet Steel Trade Extension Committee, Pittsburgh.
7. Address—"The Sheet Steel Home." Bennett Chapple, publicity manager, American Rolling Mill Co., Middletown, O.
8. Address—"Creating a Sheet Steel Minded Public." J. J. Rockwell, vice president, Crosby-Chicago.
9. Address—"The Need For and Value of Co-operation in Trade Extension Effort." Laurence F. Miller, general manager sales, National Enameling & Stamping Co., Granite City, Ill.
10. Address—"Measuring Advertising Value." C. C. Parlin, director research, Curtis Publishing Co., Philadelphia.

Thursday, May 20

11. Address—"Master Brand Galvanized Sheets How Use of the Brand May Be Further Extended." Walter C. Carroll, vice president, Inland Steel Co., Chicago.
12. Address—"The Trade Extension Program from the Members' Standpoint." J. C. Grimes, advertising manager, Wheeling Steel Corp., Wheeling, W. Va.
13. Address—"Market Stability Through Standardization and Classification. Charles O. Hadly, general manager sales, Alan Wood Iron & Steel Co., Philadelphia.
14. Address—"Relation of City Building Codes to Sheet Steel Demand." George L. Bennett, director building trade extension, Sheet Steel Trade Extension Committee, Pittsburgh.
15. Address—"Converting Interest into Tonnage." Murray Springer, vice president, Crosby-Chicago.
16. Address—"Optimism or Pessimism—Which?" Speaker to be selected.

Entertainment features for the convention include a complimentary dinner at 7 p. m., Monday May 17. Prize golf games will be conducted each day at 1.30 p. m.

Equip Rivers For Steel

(*Concluded from Page* 1111)

down the Monongahela river from the mines to the by-product coke works of the Jones & Laughlin Steel Corp. at its Aliquippa plant below Pittsburgh, or the Carnegie Steel Co. at Clairton, Pa., by means of open barges. In the one case the coal is discharged at the mine directly from the tipple into the barge. In the other, the tipple on the river bank is supplied by a steel belt conveyor system miles long from the mine mouth inland.

Roughly the freight handled on the rivers is divided naturally into two classes: Bulk, which includes steel products, coal, sand, etc.; and general package freight such as boxes, barlers and bags. The bulk terminals usually are provided by industries which handle their particular commodity largely by machinery. The Clairton plant has a dock length of 2200 feet, concrete river wall 20 feet high, depth of water alongside 8 to 10 feet. Two clamshell buckets operating from a fixed reclaiming tower unload the barge coal, discharging it into a belt conveyor moving to the coke ovens. This system handles 10,000 tons per diem. The Jones & Laughlin dock is 1200 feet long and 10 to 15 feet deep.

The W. C. Kelly Barge Line, which proposes to transport freight for the general shipper, as compared with the above mentioned strictly plant facilities, is building standardized terminals of concrete and steel at Glassport, Pa., Charleston, W. Va., Evansville, Ind., and Memphis, Tenn. Upon these terminals are constructed standardized crane equipment. The three parallel crane runways are constructed 37 feet 6 inch center to center, just as are the barge hatches, so that all three cranes operate simultaneously.

Three main types of terminals are already operating along the Ohio and Mississippi rivers. First is the direct lift such as the crane and clamshell; second, the conveyor system, this including belt or slat conveyors and small industrial cars operated upon a continuous hook-chain belt between the river and land levels; and third, the floating terminal which is approached diagonally down the river bank over a standard gage railroad track equipped with adjustable trestle and apron as used by the river carferries.

The St. Louis municipal terminal, upon which it has expended $1,000,000, is a good type of the direct-lift, which type is considered the cheapest, although its machinery equipment as in the case of the Carnegie Steel Co. at Clairton runs into high figures.

The Memphis terminal, where the municipality has expended $1,500,000 in different terminal units and such industrial concerns as the Kelly Barge Line, the Jones & Laughlin Corp. and others are putting in their own terminals, as for instance the Carnegie Steel Co. plans to do at Baton Rouge for export by ocean vessels, is a good type of the second or conveyor system. At Memphis a wharfboat is required at the foot of the 100-feet bank at low water. From the top level to the water leads a concrete tunnel in which are intsalled two link-hook-chain hauls to use in pulling 2-ton industrial cars over the incline.

The third type of conveyor is preferred by the Inland Waterways Corp., that of the floating terminal. Such terminals are in use at East St. Louis, Cairo, Vicksburg and Memphis. The freight cars are run down to the wharfboat alongside which the towboat is moored, by means of standard gage railroad tracks on which operate powerful switch engines on a 3½ per cent grade. The public terminal at Nashville, Tenn., on the Cumberland river, is an immense concrete warehouse in general appearance of 5 stories, the deck used being that convenient for the stage of water.

By these various systems of river transportation and terminal handling, freight charges have been reduced until today it is the contention of the steel companies, for instance, they save $2 a ton on every ton of steel transported via the Ohio River to the lower river ports. The Cincinnati power plant figures it saves $1 a ton on each ton of coal it receives from the mines 200 miles up the Ohio river. These savings are calculated in comparison with present prevailing railroad freight rates.

Hence, with economical river transportation, cheap but good fuel adjacent to the Ohio and its tributaries, economical loading and unloading devices which supplement the savings made in the river transportation and the first big units of the superpower electrical system operating, the industrial future of the Ohio valley is brightly pictured. This elaborate program of development and the great stimulus to industrial expansion which is bound up with it promise to have further strengthened the industrial supremacy of the Central West by the time of the final completion of the Ohio river improvements in 1929.

Equipment Makers

To Have Own Booth at Foundry Exhibit—Large Spring Meeting

At the spring meeting of the Foundry Equipment Manufacturers association, in French Lick, Ind., April 22-23, arrangements were completed for the association to be represented with a booth at the annual foundry exhibition in Detroit in September. Data regarding the activities of the association will be available at the exhibition, and the booth will be in charge of a special representative of the equipment manufacturers' organization.

The attendance at the French Lick meeting was the largest in the history of the association. Nearly every member was represented, and a large group of invited guests also were present. A number of new members were obtained, with definite assurances that the growth of the organization will continue throughout the year. The companies now represented in the Foundry Equipment Manufacturers association control a majority of the business done in that field.

S. T. Johnston, S. Obermayer Co., Chicago, president of the association, occupied the chair, assisted by Vice President T. W. Pangborn, Pangborn Corp., Hagerstown, Md.

The reports on business conditions indicated that there was a high degree of activity in all departments during the first quarter of the year, averaging about 25 per cent in excess of 1925. Shipments still are heavy. New business continues normal.

G. B. Pickop, Malleable Iron Fittings Co., Branford, Conn., submitted a report covering recent progress in the development of permanent molds. P. B. Crouse, Whiting Corp., Harvey, Ill., held the attention of the members for over an hour describing the application of the group bonus plan of wage payment.

"Long Terms on Machinery Sales" was discussed by A. F. Jensen, Hanna Engineering Works, Chicago. S. C. Vessy, W. W. Sly Mfg. Co., Cleveland, presented a report on conditional sales. C. E. Hoyt, executive secretary, American Foundrymen's association, described the arrangements for the Detroit exhibition of foundry and shop equipment, which will probably be the largest ever held. The Equipment association pledged its co-operation in the entertainment of the overseas delegates who will attend the Second International Foundrymen's congress, in Detroit, simultaneously with the exhibition.

The next meeting of the Foundry Equipment Manufacturers association will be in Cleveland, June 22.

Two Strikes Threaten Britain

Coal Situation Serious; 17 Engineering Unions Demand Increase, Take Vote on Walkout—Iron and Steel Markets Quiet—Germans Selling Steel Bars for Export at $24

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, April 27.—(*By Cable*)—The British coal crises still is serious, although there is some hope that a strike will be averted. British industry is menaced by another storm cloud, as 17 engineering unions have decided to issue strike ballots returnable May 31. They are demanding a wage increase of 20 shillings a week.

The pig iron market is dull, and continental competition in the steel market is increasing. Domestic building and railroad orders, including steel coaches, are good. The market for galvanized sheets is easier, although production and sales are increasing.

Berlin reports an improvement in exports, at the expense of prices. Steel bars have been sold to India, China and the Argentine at £5 3s 6d ($24). Bar exports ot the United States in February totaled 4979 tons. The market in Belgium is depressed. French exports are reported slightly lower.

Coal Strike Talk Hurts British Steel Market

LONDON, April 15.—(*European Staff Service*)—The British iron and steel business is entirely governed by the coal crisis, a solution of which is impending. Although the door is still open to negotiations between owners and miners, the attitude of the latter leaves little ground for a satisfactory outcome. The government is exerting itself to bring the parties together. Whereas the owners have accepted the report of the royal coal commission, the miners' executives take exception to lower wages, longer hours and district negotiations. They are taking a firm stand and are backed up by other trade union organizations. These events are reflected on the iron and steel market. Buyers and sellers alike will not commit themselves beyond taking care of immediate requirements. Furnaces and steel plants would be among the first to feel the effects of a coal stoppage.

Pig iron export business is dull. Shipments from the Clyde to foreign destinations during the week ended March 27 were 905 tons, and for the week ended April 3 they were only 591 tons. The last figure was due to the Easter holidays. Continental competition in pig iron is scarce, except in the Scottish area. Prices asked by producers abroad are scarcely competitive. Dealings in the hematite pig iron department are greatly limited. Inquiry from abroad is restricted owing to the high price of Middlesbrough hematite in comparison with the continental product. Middlesbrough foundry pig iron, 2.5 to 3 per cent silicon, remains at £3 10s 6d ($17.10) for export; hematite pig iron on the East Coast is quoted at £3 16s 6d ($18.10) per ton, although this price would, no doubt, be shaded for acceptable tonnages. The United States continues among the best buyers of British pig iron.

There is fair buying of continental semifinished steel. French and Belgian billets are delivered in the Birmingham district at £5 5s 6d to £5 10s ($21.50 to $26.60), the domestic price being £6 2s 6d to £6 5s

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, April 26	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		Francs		Francs		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$17.01	3 10 0*	$15.79	470	$16.24	445	$17.50	3 12 0
Basic	16.52	3 8 0	15.79	470	16.24	445	17.01	3 10 0
Basic-bessemer	18.59	3 16 6†	14.45	430	15.51	425	18.23	3 15 0
Hematite, Phosphorus 0.02-0.05	19.93	4 2 0	19.15	570	.....	...	20.66	4 5 0
SEMIFINISHED STEEL								
Billets	$27.34	5 12 6	$20.83	620	$21.54	590	$24.30	5 0 0
Wire rods	43.74	9 0 0	26.54	790	27.19	745	27.95	5 15 0
FINISHED STEEL								
Standard rails	$35.24	7 5 0	$29.23	870	$29.93	820	$29.16	6 0 0
Merchant bars	1.49c	6 17 6	1.07c	715	1.16c	685	1.14c	5 4 0
Structural shapes	1.33c	6 2 6	1.03c	685	1.11c	650	1.07c	4 17 0
Plates, ship, bridge and tank	1.55c	7 2 6	1.15c	765	1.22c	715	1.29c	5 17 0
Sheets, black, 24 gage	2.22c	10 5 0	2.04c	1,365	2.18c	1,285	2.53c	11 10 0
Sheets, galvanized, 24 gage, corrugated	3.34c	15 7 6	3.15c	2,100	4.08c	2,400	3.63c	16 10 0
Bands and strips	2.17c	10 0 0	1.39c	925	1.51c	890	1.54c	7 0 0
Plain wire, base	2.12c	9 15 0	1.74c	1,160	1.53c	900	1.51c	6 17 0
Galvanized wire, base	2.77c	12 15 0	2.36c	1,575	2.04c	1,200	1.98c	9 0 0
Wire nails, base	2.06c	9 10 0	2.03c	1,350	1.62c	950	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.68	0 19 3	.....	...	.....	...	$ 6.56	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$18.01	3 10 0	$13.61	405(2)	$13.32	365	$19.55	85
Basic pig iron	16.52	3 8 0	13.44	400(1)	13.14	360	20.24	88
Furnace coke	3.65	0 15 0	5.17	154	4.38	120	4.95	21.50
Billets	26.73	5 10 0	19.32	575	19.89	545	27.37	119
Standard rails	1.63c	7 10 0	1.05c	700	1.14c	670	1.46c	140
Merchant bars	1.57c	7 5 0	1.06c	705	1.10c	645	1.46c	140
Shapes	1.44c	6 12 6	1.00c	660	1.04c	610	1.42c	136
Plates, ship, bridge and tank	1.52c	7 0 0	1.17c	780	1.18c	695	1.60c	153
Sheets, black, 24 gage	2.33c	10 15 0	2.03c	1,350	2.01c	1,180	2.35c	225
Sheets, galvanized 24 gage, corrugated	3.42c	15 15 0	3.08c	2,050	4.08c	2,400	3.96c	380
Plain wire	2.39c	11 0 0	1.73c	1,150	1.49c	875	1.85c	177
Bands and Strips	2.28c	10 10 0	1.37c	910	1.45c	850	1.67c	160

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 0d ($3.65) f. o. b. Ferromanganese £14 15s 0d ($71.69) f. o. b. German ferromanganese £14 10s 0d ($70.47) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

($29.60 to $30.35). However, the bulk of this continental material goes to the South Wales tinplate makers who have an advantage on transportation rates. In finished steel demand for export is poor and the effect of the depreciated franc exchange does not make it easier for British makers to obtain orders. Belgian beams are delivered in Birmingham at £6 ($29), against the domestic price of £6 12s 6d ($32.20). The engineering trades are more active. The Wellman Smith Owen Engineering Corp. Ltd., has delivered a large weldless tube mill of their own design to the Weldless Steel Tube Co. Tubes can be rolled to approximately 6 inches in diameter. This is claimed to be the largest tube plant installed in any works in this country since 1919.

A quiet tone prevails in the continental iron and steel markets, due in part to fluctuations in the franc rate causing uncertainty as to the trend of prices. Pig iron, however, maintains a firm market. Foundry pig iron, 2.5 to 3 per cent silicon, is about £3 5s ($15.75) f.o.b. Antwerp, and basic bessemer pig iron is £3 1s ($14.80). There is some inquiry from Great Britain in Belgium, especially for billets. Continental business in finished steel is restricted. Although the depreciation of the French and Belgian currencies acts as an incentive, the time has come when producers have to pay a higher price in francs for raw materials from abroad and they find it difficult to quote satisfactory prices in view of the keen competition. The Acieries de Michville in France have booked an order for 16,000 tons of rails for Latvia. It is reported Albany, N. Y., has ordered 1500 tons of cast iron pipe from the Societe de Pont-a-Mouson. The Bulgarian state railroad is in the market for 15,000 tons of rails and track material. French rollers have offered basic bessemer plates at £6 2s 6d ($29.70) delivered Manchester, England, and open-hearth plates at £6 14s ($32.45). The British domestic price for open-hearth quality is about £7 ($34). The United States has passed numerous orders in Belgium for reinforcing bars at £5 12s 6d to £5 14s ($27.20 to $27.55).

French Steelmakers See Stability

Office of IRON TRADE REVIEW,
23 Rue de la Bienfaisance

PARIS, April 15.—(*European Staff Service*)—The voting of the French budget is the feature of the situation. Finance Minister Peret's new tax measures, which will balance the budget and have the effect of increasing treasury receipts immediately, have been passed by the Chamber and Senate. Great relief is expressed in business circles since the successive fall of governments over the tax question was beginning to paralyze trade. Now that industrialists know what is expected they can adjust prices to compensate for increased taxation and business should regain a semblance of stability.

It will probably take several weeks for the market to adjust to new conditions arising through increased taxation. For the present, manufacturers appear satisfied to maintain status quo. Pig iron prices remain unchanged. Blast furnaces are operating to capacity. France is exporting iron to England and the United States. Semiphosphorus iron is quoted by one maker at $19.00 per gross ton, c.i.f. New York.

Franc—$0.035

The semifinished steel market is firm. Domestic prices remain unchanged while export prices are somewhat spotty. Basic bessemer blooms are being done around £4, f.o.b. Antwerp ($19.40). Billets are firm at £4 7s to £4 7s 6d ($21.10 to $21.25), and sheet bars bring £4 9s 6d ($21.75).

Finished steel prices for domestic consumption remain unchanged. Bars for export have been forced down by keen competition at the Brussels metals bourse. Few large specifications have appeared. Some business was transacted, however, at £5 1s 6d to £5 2s 6d ($24.55 to $24.85), f.o.b. Antwerp.

French Iron Exports in February Higher

Paris, April 15.—(*European Staff Service*)—Notwithstanding the shorter month, French exports of pig iron were higher in February than in January and amounted to 68,487 metric tons. The following table shows import and export figures for January and February compared with the monthly averages of previous years, in metric tons:

Mon.	IMPORTS		EXPORTS	
ave.	Pig iron	Steel	Pig iron	Steel
1923	5,305	55,495	49,320	153,990
1924	3,540	56,780	63,900	187,380
1925	2,693	11,703	58,855	272,270
1926				
Jan.	2,657	6,906	64,888	266,471
Feb.	2,244	6.996	68,487	253,322

German Steel Trust Plan Adopted

BERLIN, April 15.—(*European Staff Service*)—Those German concerns which are to form the steel trust under the name of Vereinigte Stahlwarke each have held their general meeting and adopted the proposal. Thus the steel trust is virtually constituted. The fundamental idea is to distribute production among the participants in order that each product be manufactured by whichever works is most fitted for that particular product. The geographical position of a works will also be taken into account in order to reduce transportation costs. This means that some plant will have to be closed down but means are being taken to keep the workmen employed.

The central offices of the trust will be in Dusseldorf but the coal department will be directed from Essen. The capital will be 800 million marks ($195,000,000), of which the Rhein-Elbe-Union, composed of Gelsenkirchen, Deutsch-Luxemburg and Bochumer, participates to the extent of 39.5 per cent. Thyssen's participation is 26 per cent, Phoenix 23.65 per cent, Rhenische Stahlwerke 8.5 per cent and Van der Zypen, which is practically controlled by Phoenix, will have 2.35 per cent. The Rhein-Elbe-Union and Van der Zypen bring no coal to the combine. The organization of the sales department is not yet completed. Iron and steel on the one hand and coal on the other, will be considered separately. Export orders will be concentrated at the Thyssen works which are better equipped technically and geographically to handle such business.

Export business has again slackened. Prices of bars have been cut to about £5 6s ($25.70), but sales are limited. German producers now have also reduced quotations for thin sheets, owing to insufficient occupation, but only a few orders could be booked. Platemakers have booked orders for export and recently about 2500 tons were acquired by the Polish Ferrum Co. to be used in the manufacture of a pipe order for Japan. A slightly better demand has been noted for barbed wire, for which about £12 ($58) for No. 12 B. W. G. has been paid. Some orders for wire nails at about £8 ($38.70) were booked for the Far East.

Although recent German export figures have not attained those reached last December, foreign sales continue above the average of the corresponding period of 1925. The following table shows German imports and exports of iron and steel, in metric tons:

	Imports	Exports
Mon. ave. 1924	133,664	174,923
Mon. ave. 1925	168,654	312,786
1925		
Oct.	100,408	358,831
Nov.	94,124	321,694
Dec.	87,509	399,520
1926		
Jan.	67,597	391,172
Feb.	69,331	376,553

Foreign sales of bars in February remained practically unchanged with 63,341 tons, while exports of beams decreased to 6340 tons. Exports of bands were 10,770 tons and plates were 18,451 tons, as against 17,197 tons in January. A fair advance was registered in medium gage sheets to 15,022 tons, owing to increased shipments to Holland and the United Kingdom, while thin sheets declined to 2921 tons. Exports of pig iron increased from 28,172 tons in January to 29,557 tons in February, of which 20,850 tons were shipped to the United States.

Industrial Men in the Day's News

Paul T. Norton, New President of National Metal Trades Association

SERVICE in many phases of the association's activities has rewarded him with the presidency. He served as vice president for the past four years.

EXPERIENCED in various lines of metalworking enterprise he is admirably fitted to direct an organization devoted to promoting the interests of this industry.

ALTHOUGH university trained, his success in the industrial field is founded upon knowledge acquired by working as an apprentice.

BROADLY experienced in the administration of metalworking industrial companies, and noted for his service in association activities, the ascension of Paul T. Norton to the presidency of the National Metal Trades association at the convention in New York recently seemed the natural course of evolution.

For many years Mr. Norton has been active in the councils of the National Metal Trades association, holding various official positions. He served in the capacity of vice president for the past four years. He was elected president to succeed Paul C. DeWolf of the Brown & Sharpe Mfg. Co., Providence, R. I., who has held that position for the past two years, the customary term for that office. The election of Mr. Norton to the presidency is an indication of the continuance of the high purpose, strong application and resourceful leadership of the National Metal Trades association.

Mr. Norton, who is president of the Case Crane & Engineering Co., Columbus, O., has had a broad experience in metalworking industries. Although a university trained man, he started as an apprentice to learn the practicabilities of industry. Mr. Norton was born in Elizabeth, N. J., and was graduated from Princeton university, with the class of 1885.

Entering industry, his first connection was as apprentice in the shops of the Central Railroad of New Jersey. His advancement was rapid, however, and it was not long before he had progressed, through different connections, to the presidency of the Brighton Coal Co.

He served at times as president of the Cole Engineering Co., the Nassau Coal Mining Co. and the Kilbourne & Jacobs Mfg. Co., Columbus, O. The Case Crane & Engineering Co., of which he now is president, operates two plants at Columbus. It manufactures and fabricates electric overhead traveling cranes, railroad bridges, structural steel for buildings, railroad cars, industrial cars, tractors, warehouse trucks, motor truck bodies, and similar products. The output of the Case and Kilbourne companies now is consolidated under the direction of Mr. Norton.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

FREDERICK B. HUFNAGEL was elected president of the Crucible Steel Co. of America, at a directors' meeting held in New York April 23. He succeeds E. C. Collins, recently resigned. He is president of the Pittsburgh Crucible Steel Co., a subsidiary of the Crucible Steel Co. of America.

GILBERT P. McNIFF

Mr. Hufnagel is an alumnus of Cornell university. He has been identified with the steel industry all his business life. He came to Pittsburgh in 1901 from the American Steel & Wire Co. at Cleveland. He was first employed at the Southside works of the Jones & Laughlin Steel Corp., subsequently becoming general superintendent of that works. In 1913 he was made general superintendent of the Aliquippa works of that company at Woodlawn, Pa., remaining there until 1920, when he became president of the Pittsburgh Crucible Steel Co. No change has been made in the organization or personnel of the Pittsburgh Crucible company.

Alexander T. Galbraith, manager of sales of the Crucible Steel Co. of America, was elected vice president at the same meeting. Mr. Galbraith formerly was sales manager at Syracuse, N. Y. of the Halcomb Steel Co. After that company was taken over by the Crucible Steel Co. of America and the head office moved from Pittsburgh to New York, Mr. Galbraith became sales manager of the parent company.

H. L. Gellinger was elected a director of the Crucible Steel Co. of America, succeeding Mr. Collins.

* * *

W. Wuthenow, president Republic Rolling Mill Corp., Chicago, resigned effective April 1. He formerly was general superintendent of the western mill of the Republic Iron & Steel Co. until taken over by the Republic corporation.

* * *

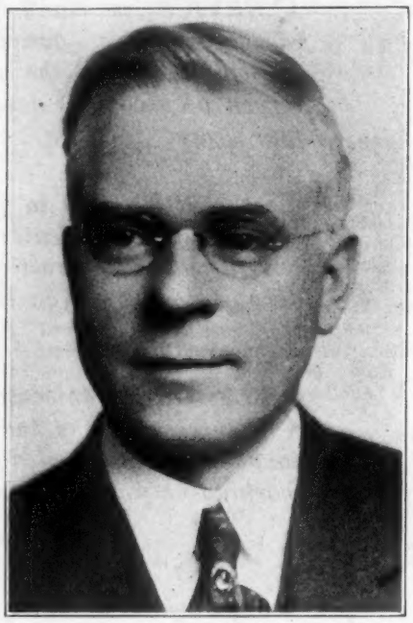
Carl Lando, formerly superintendent of the Milwaukee plant of the International Harvester Co. and more recently with the Nash Motors Co., Kenosha, Wis., has returned to the Harvester company. It is understood he will take charge of the gray iron foundry of the former Moline Plow Co. at Rock Island, Ill., which the Harvester company is to put back into production.

* * *

P. C. Patterson, assistant vice president, has been made vice president in charge of operations, succeeding Taylor Allderdice, and Gilbert P. McNiff, assistant to the vice president, has been appointed assistant vice president, in two additional promotions in the National Tube Co., Pittsburgh, following the recent election of Mr. Allderdice as president of the company, succeeding William B. Schiller.

Mr. Patterson was born in Brooklyn, N. Y., May 31, 1869. He attended the public schools of McKeesport and was graduated from the University of Western Pennsylvania, now the University of Pittsburgh. Commencing at 12 years, he worked during summer vacations in the machine shop of the National Tube Works Co., McKeesport. Upon completion of his course at the university, he returned to the machine shop to finish this trade. Later he became machine shop foreman, then superintendent of the lapwelded mills and finally construction engineer and superintendent of departments, all at McKeesport. After the absorption of the National Tube Co. by the United States Steel Corp., Mr. Patterson was transferred to the general office in Pittsburgh as mechanical engineer. Later he was made chief engineer in charge of design of new works.

About three years ago, Mr. Patterson became assistant vice president,



P. C. PATTERSON

which promotion brought him into the operating department.

Mr. McNiff, the new assistant vice president, was born in Harrisburg, Pa., Sept. 18, 1885. He was graduated from Lehigh university in 1906 and has been employed by the National Tube Co. since 1912, beginning in the metallurgical department. Following his graduation, he was employed in the open-hearth inspection and metallurgical departments of the Carnegie Steel Co. at Homestead, remaining in that position until 1910. He was made metallurgist at the Homestead steelworks in 1911 and his transfer to the metallurgical department of the National Tube Co. took place the next year. In 1915 that company made him its metallurgical engineer, in which position he remained until in 1922 when he was made assistant to the vice president.

* * *

H. Deplanche, manager of the ore

department of the American Steel Export Co., New York, sailed recently for a trip to Europe.

* * *

J. Frederic Wiese has been appointed purchasing agent of the Parkesburg Iron Co., Parkesburg, Pa., succeeding his father, the late H. B. Wiese.

* * *

Charles A. Day has withdrawn his connection from Day & Goater and will represent Edward T. Edwards, Columbia, Pa., in the sale of bar iron and steel reinforcing bars.

* * *

Elmer D. Dunning, formerly vice president and general manager of the Dunning Compressor Co., Homesburg, Philadelphia, manufacturer of air compressors, has given up his connection with that organization.

* * *

Charles H. Clark has been appointed sales representative in Massachusetts, Providence, R. I., and Meriden, Conn., for the Bridgeport Brass Co., Bridgeport, Conn. He formerly was with John Tredennick, Inc., Boston, coal interests.

* * *

William H. Woodin, president of the American Locomotive Co., Schenectady, N. Y., has been elected chairman of the board, according to statement made in connection with merger of the Railway Steel Spring Co.

F. F. Fitzpatrick, president of the Railway company is expected to succeed Mr. Woodin as president of the American Locomotive Co.

* * *

A. W. Gregg, recently made general superintendent of Bucyrus Co., South Milwaukee, Wis., manufacturer of excavating equipment, formerly was foundry superintendent. He was graduated from Purdue university, Lafayette, Ind., in 1904 and the next year joined the Bucyrus Co. He was foundry superintendent for a time for Whiting Corp., Harvey, Ill., returning to Bucyrus in the same capacity.

N. R. Knox, assistant foundry superintendent succeeds Mr. Gregg as foundry superintendent.

* * *

Dr. William Blum whose election as president of the American Electrochemical society was announced at the meeting held in Chicago April 22-24, has been continuously engaged in scientific pursuits since he was graduated from the University of Pennsylvania, Philadelphia, in 1903. He taught in the University of Utah from that date until 1909 when he became connected with the bureau of standards. At present he is chief of the electrochemistry section of that important government agency.

Obituaries

LOUIS R. LEMOINE, chairman of the United States Cast Iron Pipe & Foundry Co., died April 23 at the home of his daughter at Villa Nova, Pa., of pneumonia.

Born in St. Louis in 1859 Mr. Lemoine went to Philadelphia in 1883 and became associated with R. D. Wood & Co., cast iron pipe manufacturers. In 1896 he became vice president of the McNeal Pipe & Foundry Co., holding that office until the company was absorbed by the United States organization. He later became resident and subsequently general manager of the New Jersey Zinc Co., with offices in New York. In 1910 he returned to the United States company as second vice president in charge of sales, becoming president in 1911. He served in that capacity until 1923, when he was elected chairman having his offices at Philadelphia. Mr. Lemoine for years was recognized as one of the ablest men in the cast iron pipe industry of this country and one of his outstanding achievements was the building up of the manufacture of centrifugal pipe on a commercial basis. He was active in the work of all departments of his company and one of his dominant characteristics was the interest which he took in promising young men who developed in his organization. In fact, the company now is officered and managed throughout by young men who received their training under Mr. Lemoine and thus won his recognition. He was a member of various Philadelphia social organizations and of the American Iron and Steel institute.

* * *

Major A. J. Ennis for many years prominent importer of iron ores, died April 14 at Hotel Franklin, Philadelphia. He retired some years ago.

* * *

James H. Gledhill, former general superintendent of the Lebanon, Pa., plant of the Bethlehem Steel Co., died at his home in Lykens, Pa., April 19. He had been blast furnace superintendent for the Pennsylvania Steel Co., Steelton, Pa., now part of Bethlehem Steel Co., and also was general manager at one time of the Wharton Steel Co. furnaces and mines at Wharton, N. J., and since succeeded by the Replogle Steel Co.

* * *

Col. Keppele Hall, consulting engineer with John Williams, Philadelphia, and prominent in Taylor society activities, died April 25 in New York. He was a civil and electrical engineering graduate of Princeton university.

* * *

Louis G. Keck, 58 years old, traffic manager for the Cincinnati Bickford Tool Co., Cincinnati, died at his home in that city, April 22, following an illness of two weeks. Mr. Keck, who had been connected with the tool company for nearly a score of years, was prominent in Masonic circles.

* * *

John Lawrence Malm, mining and metallurgical engineer, died April 25 at his home in Denver. He worked at one time in the Michigan iron belt for the Corrigan-McKinney Co., now the McKinney Steel Co. For the past 20 years he has been specializing in treatment of zinc ores. He was a graduate of Case School of Applied Science, Cleveland.

* * *

Charles Leonard Rowland, founder and president of the American Welding Co., Carbondale, Pa., until that company was merged with the American Car & Foundry Co., last February, died in New York, April 18. Mr. Rowland was born in Brooklyn in 1852, and began his career with the Morton Iron Works, Brooklyn. During the war he invented the 1-ton container for transporting chlorine gas overseas. He was a member of the American Society of Civil Engineers and of the Compressed Gas Manufacturers' association.

* * *

George E. Gifford, well known in structural steel circles, died at his home in Maplewood, N. J., April 14 at the age of 62 years. Mr. Gifford had served as secretary of the Bridge Builders and Structural society from its inception in 1911 until disbanded in 1922 by Supreme Court order. He was a member of the American Society of Civil Engineers. Mr. Gifford was born in Stamford, Conn. in 1864 and was graduated from Rensselaer Polytechnic institute in the class of 1887. At various times he was connected with the King Bridge Co., Cleveland, as contracting engineer, in charge of the New York district and chief engineer of Milliken Bros., Inc., New York, and vice president of the Bowles-Gifford Co., later the Jobson-Gifford Co., New York, structural fabricators. He occupied the latter office at the time of his death.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

UNITED HOISTING CO., 310 West Sixty-fifth street, New York, recently incorporated, was organized to absorb the Thomas & Buckley Hoisting Co. and the White Hoist & Machine Co. It will manufacture electric and gasoline hoists and its principal business will be rental of contractors' equipment to steel erectors and general contractors. Plants of both companies will be operated. George S. Daso is president, Edward A. White, treasurer, Edward A. White Jr., assistant treasurer, and Karl G. Edlund, secretary.

* * *

T. & H. TOOL CO., Elyria, O., recently incorporated, has elected Scott Hinman, president, A. E. Taylor, secretary and treasurer. It will manufacture a special type of hammer.

* * *

MICHIGAN MACHINE CO., Detroit, has discontinued several of its small plants on completion of its new 5-story plant at Fifteenth and Fort streets. Its product is lubricant pumps, drill jigs and fixtures.

* * *

JOHN FOGARTY, one of the organizers of the Keystone Foundry Co., Elkhart, Ind., has leased that company's plant and will resume operations after it has been idle some months. Orders on hand will assure operation for some time.

* * *

HARTFORD FOUNDRY CORP. has started operations in the former plant of the National Machinery Co., Wethersfield, Conn. Edgar Spencer, formerly superintendent of the Connecticut Foundries at Rocky Hill, Conn., heads the new company.

* * *

AMBLER ASBESTOS CO., Asbestos, Pa., is installing equipment for the manufacture of asbestos shingles, including recently developed machinery for making them in tapered thicknesses. Sales are handled through the Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.

* * *

GENERAL MOTORS CORP. has bought a tract of 160 acres south of Detroit on the Grand Trunk railroad, which is said in the absence of official announcement, to be destined for a plant for the Yellow Truck & Coach Mfg. Co., the Chicago plant of which is said to be of insufficient capacity.

* * *

ST. LOUIS SMELTING & REFINING WORKS of the National Lead Co., at St. Louis, has let a contract for a power house at Flat River, Mo., to J. V. Boland Construction Co., St. Louis. The building will be 44 x 90 feet and 59 feet high, with 814 horse power generating capacity. A stack 250 feet high will be erected.

* * *

GILLE MFG. CO., 1423 West Ninth street, will move its plant to 1900 Guinnotte street, where it has bought half the plant formerly occupied by Smith & Sons Mfg. Co. Its product is tinware and tinners' supplies. Smith & Sons Mfg. Co. is reorganizing preparatory to reopening its plant which has been closed more than a year. It manufactures road building machinery.

* * *

TURNER-SIMPLICITY CO., Cedarburg, Wis., manufacturer of farm gas engines, is moving its plant to Oskaloosa, Iowa. It has been reincorporated in Iowa as the Turner-Simplicity Mfg. Co., with $250,000 capital. C. M. Porter is president, J. M. Timbrel, vice president, J. W. Williams, secretary, and I. E. Mathew, treasurer. Output will be largely increased in the new location.

* * *

HOUSTON STEEL & FOUNDRY CO., Houston, Tex., recently incorporated, has elected Lewis K. Bryan, chairman, T. C. Hicks, president, and E. B. Sitts, secretary and treasurer. It will proceed at once to build a steel foundry and pattern shop 96 x 180 feet for the first unit, to be followed immediately by a second unit 136 x 425 feet. The plant will be on the site of the former Southern Motors association works and several of the existing structures will be utilized.

* * *

F. J. RYAN & CO., Philadelphia, has let contracts for office building and shop at Hunting Park and Wissahickon avenues, providing more than five times present space for construction and testing of burners, and automatic combustion and temperature control devices. Certain standard furnace equipment, coming within shipping limits, also will be tested. A complete testing laboratory will be provided for use within the industrial heating field. All executive departments will be consolidated in this plant.

* * *

EFFORTS are being made to effect a reorganization of the Simms Foundry Co., Racine, Wis., specializing in the manufacture of a special line of furnaces and other heating devices. According to the statement of the company, it has assets of $313,144. It is said that liabilities exceed $300,000. At a meeting of representatives of creditors, a committee of three local business men was appointed to investigate the affairs of the company and make a report as to the advisability of a reorganization.

* * *

HARRIS CALORIFIC CO., Cleveland, and the United States Welding Co., Minneapolis, Minn., both manufacturers of gas welding apparatus, have consolidated with plant at Cleveland. John Harris has been made chairman of the board of the consolidated company, George B. Harris, president, Lorn Campbell Jr., vice president and general manager, John M. Mathews, secretary, Lorn Campbell, treasurer. Directors consist of the officers and John B. Hull, Frank M. Casto, Elbert H. Baker and one other to be elected.

* * *

STOCKHOLDERS of the Oil Well Supply Co., Oil City, Pa., recently re-elected the following directors for the coming year: Louis Brown, D. J. Brown, H. C. Burns, E. W. Criswell, Thomas Fleming Jr., and S. C. Reed of Pittsburgh; J. H. Chickering and H. H. James of Oil City, Pa.; Henry Lockhart Jr. and Hunter S. Marston of New York, and W. H. Spain of Denver, Col. The following officers were re-elected: President, Louis Brown; vice presidents, D. J. Brown, Thomas Fleming Jr., and S. C. Reed; treasurer, H. C. Burns; assistant treasurer, H. A. Boschert; secretary W. W. Anderson; assistant secretary, E. W. Criswell.

Current Statistics of Industry

Fabricated Steel Plate Bookings Drop

Washington, April 27.—Fabricated steel plate bookings in March totaled 29,004 tons, a drop from 30,809 tons in February, according to reports from 36 manufacturers to the department of commerce and announced briefly in last week's issue. March bookings were at 43 per cent of capacity, compared with 44 per cent in February and 33 per cent in March, 1925. Following are further comparisons:

	Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1923	539,043	296,128	44,576	9,815	141,359
1924	313,109	123,368	43,747	12,601	108,046
1925—					
March	22,502	2,908	3,635	651	8,158
Tot. 3 mo.	70,371	10,543	14,223	5,435	25,197
April	22,430	6,547	1,460	691	9,351
May	27,684	8,503	2,118	404	10,141
June	34,402	16,327	2,192	373	11,349
July	29,272	16,327	2,284	373	11,349
Aug.	29,261	7,500	3,671	1,240	11,826
Sept.	23,983	8,458	1,510	425	10,600
Oct.	28,338	8,076	1,432	2,500	12,621
Nov.	28,557	7,492	4,559	581	9,491
Dec.	31,585	7,714	3,172	407	14,776
Totals	325,883	87,541	34,588	12,658	129,511
1926					
January	*25,077	8,165	2,286	1,720	9,434
February	*30,809	9,630	4,068	806	9,315
March	29,004	5,773	5,048	377	12,382
Tot. 3 mo.	84,890	23,568	11,402	2,903	31,131

*Revised.

March Automobile Output Makes Sharp Rise

Washington, April 27.—Automobile production in March registered a sharp gain, rising to the highest monthly total for all time, with the exception of October, 1925, according to statistics made public by the department of commerce. The March output was 398,042 passenger cars and 51,636 trucks, of which 379,769 passenger cars and 47,788 trucks were made in the United States, and 18,273 passenger cars and 3847 trucks were produced in Canada. Removal of the Canadian import duty on automobiles is expected to result in a sharp decline in the production of American cars in Canadian subsidiary plants.

Passenger Cars

	Total 1923	Total 1924	Total 1925	Total 1926
Jan.	228,860	293,822	212,908	283,263
Feb.	260,320	343,444	252,785	334,529
March	427,038	357,006	332,151	398,042
April	351,622	346,355	391,802	
May	358,646	286,266	382,714	
June	343,985	225,034	364,806	
July	303,497	244,503	358,554	
Aug.	318,848	255,193	221,813	
Sept.	302,340	263,468	272,413	
Oct.	338,469	260,845	406,569	
Nov.	288,810	204,316	336,358	
Dec.	279,862	182,028	285,199	
Total	3,702,297	3,262,280	3,817,639	

Trucks

	Total 1923	Total 1924	Total 1925	Total 1926
Jan.	20,506	30,627	28,141	32,629
Feb.	23,283	32,756	34,410	40,816
March	36,619	36,270	45,098	51,635
April	39,641	37,766	47,822	
May	45,677	35,112	43,303	
June	42,453	28,884	38,054	
July	31,703	26,227	41,840	
Aug.	32,195	28,503	37,770	
Sept.	29,626	31,829	60,374	
Oct.	31,515	32,332	45,823	
Nov.	29,166	27,766	40,001	
Dec.	28,862	27,324	34,370	
Total	391,246	375,426	497,104	

*Estimated.

Steel Castings Bookings Continue High

Washington, April 27.—Bookings of steel castings in March totaled 104,467 tons or 80 per cent of capacity, compared with 93,121 tons and 71 per cent in February and 75,537 tons and 60 per cent in March, 1925, according to reports to the department of commerce from manufacturers representing over four-fifths of the total commercial capacity of the United States. Production totaled 107,867 tons or 83 per cent of capacity. The department of commerce lists also revised bookings for the past several years and monthly average from 1913. Following are further comparisons:

BOOKINGS

Monthly average	Total net tons	Per cent capacity	Railway specialties net tons	Miscellaneous net tons
1913	57,184	67	27,600	29,584
1914	43,602	51	21,142	22,460
1915	64,252	72	29,966	34,286
1916	101,015	107	54,645	46,370
1917	88,394	88	34,529	53,865
1918	109,374	105	48,124	61,450
1919	44,120	41	13,692	30,428
1920	78,597	68	33,080	45,517
1921	29,707	26	12,210	17,497
1922	77,167	67	38,890	38,277
1923	88,790	75	40,318	48,472
1924	77,764	64	39,961	37,803
1925	75,041	60	31,386	43,655
March, 1925	75,537	60	29,789	43,748
Total 3 months	250,754	....	114,826	135,928
April	74,541	59	29,861	44,680
May	63,827	51	22,817	41,010
June	62,700	50	23,301	39,399
July	67,881	54	26,387	41,494
August	63,606	51	23,130	40,476
September	59,326	47	20,738	38,588
October	74,283	59	26,434	47,849
November	83,197	66	38,485	44,712
December	100,377	80	50,654	49,723
Total	900,492	60	376,633	523,859
1926				
January	106,186	81	51,557	54,629
February	93,121	71	41,236	51,885
March	104,467	80	44,461	60,006
Total (3 mos.)	303,774	....	137,254	166,520

PRODUCTION

1926				
January	92,047	70	37,321	54,726
February	90,917	69	41,191	49,726
March	107,867	83	46,571	61,296
Total (3 mos.)	290,831	....	125,083	165,748

River Shipment of Steel Gains in March

Pittsburgh, April 27.—River commerce in iron and steel during March gained considerably over February, as reported by the federal engineers in this district. Following are comparisons of steel shipments:

	Allegheny river	Monongahela river	Ohio river
March	....	34,666	25,675
February	250	23,577	20,223
January, 1926	30	16,535	16,700
December	610	20,506	37,423
November	530	25,800	49,041
October	15	22,200	25,260
September	3,560	31,430	22,987
August	....	29,010	42,004
July	....	23,960	35,835
June	132	30,000	27,791
May	735	32,479	42,466
April	797	23,350	18,375
March	200	22,328	27,000
Totals, 1923	1,064	291,689	190,336
Totals, 1924	56,720	266,074	216,138
Totals, 1925	7,479	304,217	365,844
Total, 1926 to date..	280	74,778	62,598

Structural Steel Sales Increase in March

Washington, April 27.—Computed bookings of structural steel in March totaled 207,400 tons, compared with 186,050 tons in February and 210,450 tons in March, 1925, according to the department of commerce. Actual bookings reported by 184 companies with 263,095 tons monthly capacity were 179,405 tons. Computed shipments for March totaled 247,050 tons, compared with 192,150 tons in February and 222,650 tons in March last year. Bookings for March were at 68 per cent of capacity. Following are further comparisons:

1925	Actual tonnage	Per cent of capacity	Computed tonnage	Shipments computed
March	183,286	69	210,450	222,650
Total (3 mos.)	....	....	561,200	585,600
April	204,936	76	231,800	231,800
May	183,823	68	207,400	231,800
June	229,130	86	262,300	234,850
July	217,834	81	247,050	250,100
Aug.	209,752	78	237,900	244,000
Sept.	216,428	80	244,000	240,950
Oct.	239,680	89	271,450	268,400
Nov.	191,170	71	216,550	225,700
Dec.	200,498	75	228,750	244,000
Total (12 mos.)			2,708,400	2,757,200
1926				
Jan.	†160,203	59	179,950	210,450
Feb.	‡163,230	61	186,050	192,150
March	*179,405	68	207,400	247,050
Total (3 mos.)			573,400	649,650

*Reported by 184 companies with capacity of 263,095 tons.

†Reported by 200 firms with a capacity of 270,180 tons.

‡Reported by 197 companies with 269,660 tons capacity.

News of Societies

THE AMERICAN REFRACTORIES INSTITUTE will hold its annual meeting at the Bellevue-Stratford hotel, Philadelphia, Wednesday, May 12, it has just been announced. A session will be held in the morning and another in the afternoon, with a luncheon at noon. Technical papers which have been arranged should prove of interest to both consumers and manufacturers of refractories. These papers are as follows:

"Service Conditions in Open Hearth Furnaces as Affecting the Life of Refractories," by F. W. Schroeder, assistant chemist, United States bureau of mines, Pittsburgh.

"The Refractories Industry in New Jersey," by G. H. Brown, head of the ceramics department, Rutgers university, New Brunswick, N. J.

"Mullite Refractories," by M. L. Freed, research fellow, United States bureau of standards, Washington, D. C.

"Industrial Research," by Dr. E. R. Weidlein, director, Mellon Institute of Industrial Research, Pittsburgh.

"The Study and Development of Tests for Fire Brick with Special Reference to Spalling," by S. M. Phelps, refractories fellow, Mellon institute, Pittsburgh.

"Permeability as a Measure of the Uniformity of Fire Brick," by Dr. A. E. R. Westman, research fellow, University of Illinois, Urbana, Ill. Dr. Westman will also discuss investigations being conducted on checker brick for water-gas sets.

* * *

The Southern Metal Trades Association will conduct its annual meeting at the Dempsey hotel, Macon, Ga., May 5-6, according to an announcement just made. The program for the meeting is as follows:

Wednesday, May 5

MORNING

Address of welcome: Judge Malcolm D. Jones, Macon, Ga.
Reports of officers.
Address: "Banks and Their Relation to Industry," by T. Rad Turner, chairman, board of directors, Macon National bank.
Address: "Foundry Management and Its Effect on Costs," by W. J. Barrett, Metropolitan Life Insurance Co., New York.
Address: "Costs," by J. S. Schofield, president, J. S. Schofield's Sons Co., Macon, Ga.
Address: "Refining Molten Cast Iron," by G. S. Evans, metallurgist, Mathieson Alkali Works, Chicago.
Address: "Importance of Uniformity of Coke," by E. J. Rowe, Adams, Rowe & Norman, Birmingham, Ala.
Address: "Modern Foundry and Machine Shop Construction," by C. A. Harwick, southern manager, H. K. Ferguson Co., Birmingham, Ala.
Address: "The South Awake," by Russell Hunt, secretary-treasurer, Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.

AFTERNOON

Plant visitation.

EVENING

Banquet.

Thursday, May 6

MORNING

Address: "Safety of Employes in Business," by W. E. Small, president, Georgia Casualty Co., Atlanta, Ga.
Address: "Open Shop—Labor Conditions," by C. A. McAllister, vice president, Taylor Iron Works & Supply Co., Macon, Ga.
Address: "What the Association Has Done for Its Members," by Horace Lanier, president, West Point Iron Works, West Point, Ga.
Election of officers.

* * *

Management Groups To Meet

Announcement is made that the financial executives' division of the American Management association will hold its second conference at Hotel Astor, New York, May 26-27. A similar meeting of the production executives' division is scheduled for June 30-July 2 at Silver Bay, Lake St. George, N. Y. The principal theme of discussion for the latter meeting will be "The Supervisory Forces—Their Selection, Development, Compensation, etc." A number of papers discussing these subjects have been secured.

Award Bessemer Medal

The council of the Iron and Steel institute in London has this year awarded its bessemer gold medal to Sir Hugh Bell. The medal, award of which is made in recognition of outstanding services in the advancement of the manufacture of iron and steel, will be presented to Sir Hugh Bell at the annual meeting of the institute on May 6, by the incoming president, Sir W. Peter Rylands.

New Mills Are Started

Expansion programs inaugurated by the Bethlehem Steel Co. within the past two years gradually are nearing completion. The new rod mill at the Sparrows Point plant, which first was turned over March 22, now is on regular production while the new 18-14-inch structural mill at its Lackawanna plant, which first was turned over March 25, has been placed on a regular production basis.

A strike of 250 employes at the Cleveland plant of the Fisher Ohio Body Co. has been settled, the company taking back such workers as it desired, at former wages. This was the first strike called by the Cleveland Federation of Labor in a city-wide spring organization campaign.

Convention Calendar

April 26-28—National Supply and Machinery Distributors' association. Twenty-second annual meeting at Ambassador hotel, Atlantic City, N. J. George A. Fernley, 505 Arch street, Philadelphia, is secretary.

April 28-30—National Foreign Trade council. Thirteenth annual convention, Francis Marion hotel, Charleston, S. C. O. K. Davis, India house, 1 Hanover square, New York, secretary.

May 3-6—American Society of Mechanical Engineers. New England regional meeting, Providence, R. I. Calvin W. Rice, 29 West Thirty-ninth street, New York, secretary.

May 5-6—Southern Metal Trades association. Annual meeting at Dempsey hotel, Macon, Ga. W. E. Dunn Jr., Healey building, Atlanta, Ga., is secretary.

May 6-7—Iron and Steel institute. Annual meeting at Institution of Civil Engineers, London. G. C. Lloyd, 28 Victoria street, London, S. W. 1, is secretary.

May 10-15—Chemical Equipment and Process Engineering exposition. Second exposition at Public hall, Cleveland, under auspices of Association of Chemical Equipment Manufacturers. Roberts Everett, 1328 Broadway, New York, is secretary.

May 12—American Refractories institute. Annual meeting at Bellevue-Stratford hotel, Philadelphia. D. A. Texter, 2202 Oliver building, Pittsburgh, secretary.

May 13-15—American Gear Manufacturers' association. Annual meeting at Book-Cadillac hotel, Detroit. T. W. Owen, 2443 Prospect avenue, Cleveland, secretary.

May 17-21—National Association of Sheet and Tin Plate Manufacturers. Fourth annual meeting at Hotel Greenbrier, White Sulphur Springs, W. Va. Walter W. Lower, 421 Oliver building, Pittsburgh, secretary.

May 17-22—American Supply and Machinery Manufacturers' association. Annual convention at Hotel Statler, St. Louis. F. D. Mitchell, 1819 Broadway, New York, secretary.

May 18-20—Southern Supply and Machinery Dealers' association. Annual convention at St. Louis. Alvin M. Smith, Richmond, Va., secretary-treasurer.

May 20-21—American Society for Steel Treating. Spring sectional meeting, Hotel Bond, Hartford, Conn. W. H. Eisenman, 4600 Prospect avenue, Cleveland, secretary.

May 21—American Iron and Steel institute. Spring meeting at Hotel Commodore, New York. E. A. S. Clarke, 40 Rector street, New York, is secretary.

June 1-4—Society of Automotive Engineers. Summer meeting at French Lick Springs, Ind. Coker F. Clarkson, 29 West Thirty-ninth street, New York, secretary.

June 7-10—Association of Iron and Steel Electrical Engineers. Twenty-second annual convention and exposition at Hotel Sherman, Chicago. John F. Kelly, 513 Empire building, Pittsburgh, secretary.

June 9-12—National Association of Purchasing Agents. Eleventh annual convention and exposition, Ambassador hotel and auditorium, Los Angeles. W. L. Chandler, Woolworth building, New York, secretary.

June 16-18—Society of Industrial Engineers. Thirteenth national convention, Bellevue-Stratford hotel, Philadelphia. George C. Dent, 608 South Dearborn street, Chicago, executive secretary.

June 21-25—American Institute of Electrical Engineers. Annual convention at White Sulphur Springs, W. Va. F. L. Hutchison, 29 West Thirty-ninth street, New York, secretary.

June 21-25—American Society for Testing Materials. Annual convention at Chalfonte Haddon hall, Atlantic City, N. J. C. L. Warwick, 1315 Spruce street, Philadelphia, secretary.

June 28-July 1—American Society of Mechanical Engineers. Spring-summer convention at Palace hotel, San Francisco. Calvin W. Rice, 29 West Thirty-ninth street, New York, secretary.

March Steel Exports Up

(*Concluded from Page* 1150)

ruary-March period. Manganese ore imports were steady, totaling 27,239 tons in February and 27,391 tons in March. Brazil was the largest shipper in March totaling 12,882 tons compared with 1111 tons in February.

Exports in March were featured by few changes from the February totals. Scrap increased from 6770 to 10,326 tons, steel bars from 11,115 to 13,622 tons, plates from 10,277 to 13,250 tons, and galvanized sheets from 12,827 to 15,751 tons. Boiler tube and welded pipe exports continue heavy, totaling 19,406 tons in March and 68,987 tons for the first quarter, the heaviest individual product shipped for the first three months of 1926.

ORIGIN OF FERROMANGANESE IMPORTS

Gross Tons

Countries	March, 1926	March, 1925	3 months ended March
Germany	80	.....	243
Norway	1,899	.....	2,367
United Kingdom	621	4,077	5,239
Canada	1,541	437	3,815
France	.....	.....	42
Chile	.....	33	.....
British India	.....	75	.....
Other countries	.....	399	.....
Totals	4,141	5,021	11,706

ORIGIN OF MANGANESE IMPORTS

Concentrates
Gross Tons

Countries	March, 1926	March 1925	3 months ended March
Germany	9	16	26
Soviet Russia	9,166	4,869	44,091
Norway	.....	500	21
United Kingdom	28	1,400	205
Brazil	12,882	9,833	32,447
British India	638	2,273	3,200
British West Africa	4,668	4,215	10,298
Chile	.....	209	1,238
Totals	27,391	27,239	92,128
	Free		
Cuba	237	.....	237

ORIGIN OF IRON AND STEEL IMPORTS

Gross Tons

Countries	Steel bars	Steel ingots, blooms, etc.	Steel scrap	Cast iron pipe
Austria	64	.....	1,698	.....
Canada	.....	21	.....	b
Belgium	3,801	385	.....	704
Finland	311	.....	.....	.....
France	791	399	.....	2,002
Germany	340	498	599	7
Mexico	.....	.....	86	.....
Netherlands	2,355	.....	.....	.....
Panama	.....	.....	140	.....
Sweden	583	543	.....	.....
United Kingdom	213	16	.....	.....
Other countries	10	51	.....	.....
Totals	8,468	1,913	2,523	2,718

ORIGIN OF IRON ORE IMPORTS

Gross Tons

Countries	March 1926	March 1925	Nine months ended March 1926	Nine months ended March 1925
France	3,000	.....	3,000	.....
Germany	270	.....	762	.....
Spain	22,311	20,420	90,688	100,506
Canada	298	1,003	5,650	4,374
Cuba	29,700	72,820	375,012	254,508
Sweden	.....	.....	105,744	248,309
Brazil	332	.....	332	.....
Chile	113,100	60,200	926,000	909,475
Algeria and Tunis	13,500	7,400	98,175	154,289
Other French Africa	1,611	**	1,611	**
Other countries	.....	852	38,428	18,505
Totals	184,122	162,695	1,674,402	1,689,966

**Included with Algeria and Tunis as French Africa in 1925.

ORIGIN OF PIG IRON IMPORTS

Gross Tons

Countries	—March— 1926	1925	Three months ended March, 1926
Belgium	1,733	2,226	3,893
France	2,150	2,687	14,514
Germany	13,900	15,648	39,164
Netherlands	9,231	5,747	23,074
Sweden	444	100	474
United Kingdom	12,250	7,702	43,909
Canada	559	1,644	1,692
British India	14,558	15,049	33,877
Lithuania	.....	.....	1,530
Totals	54,825	50,803	156,370

IMPORTS OF IRON AND STEEL BY COUNTRIES

Gross Tons

Country	March 1926	First quarter 1926
Austria	98	233
Belgium	14,751	37,278
Czechoslovakia	33	625
Denmark and Faroe islands	.....	31
Finland	457	457
France	6,813	28,686
Germany	17,695	48,968
Italy	38	38
Lithuania	.....	1,530
Netherlands	14,795	33,184
Norway	1,910	2,426
Sweden	2,359	6,544
Switzerland	1	5
United Kingdom	14,424	52,871
Canada	4,947	14,799
Panama	140	6,634
Mexico	87	172
Other British West Indies	.....	103
Cuba	.....	3,597
Dominican Republic	.....	62
Chile	.....	4
British India	14,558	34,130
China	.....	2
Java and Madura	.....	1
Japan, including Chosen	1	7
Total	93,107	272,387

Industrial Business Changes

ROME BRASS & COPPER CO., Rome, N. Y., will be represented in Missouri by the Brass & Copper Sales Co., 1712 Locust street, St. Louis. This company has been incorporated for this purpose, with H. P. Hubbell, president, and Howard H. Hubbell, secretary and treasurer. They are officers of Hubbell & Sharp, whose offices have been removed from the Chemical building to the above address. G. B. Leitch is manager of sales.

* * *

M. A. Hanna Co., Cleveland, has moved its office in Detroit to 1426 Buhl building.

* * *

Federal Machine & Gear Co., Cleveland, has changed its name to Federal Gear Inc.

* * *

Elyria Iron & Steel Co. has bought the business and plant of the Superior Metal Products Co., both companies of Elyria, O. Hugh B. Wick is president of both. The Superior company manufactures metal stampings.

* * *

General Machine & Iron Works, Detroit, will move its general offices to Plymouth, Mich.

* * *

J. R. O'Donnell Co., San Francisco, has moved to new offices at 1377 Mission street, and has taken over management of the factory branch of the Automotive Manufacturers Outlet Co.

* * *

National Foundry Co., Erie, Pa., has established a district sales office at 1401 First National Bank building, Pittsburgh, in charge of W. J. Flanagan and E. C. Grandin.

* * *

Wayson-Stillman Co., New York, will move its main offices and sales department May 1 from 50 Church street to 75 West Street, in the Evening Post building. The company has established a branch sales office at 7752 Duboise street, Detroit, in charge of Earle M. Porter.

* * *

Charles A. Day, 30 Church street, New York, has withdrawn his connection with Day & Goater and will represent Edward T. Edwards, Columbia, Pa., in the sale of bar iron and steel reinforcing bars.

* * *

Atlas Fence Co., Newark, N. J., will move its offices from 1 Clinton street to its new plant at 35 Verona avenue, just completed and about to be occupied. Operations at its former plant at 288 Passaic street will be discontinued.

* * *

Reed-Prentice Co., Worcester, Mass., has been appointed sales agent for New England and southern New York for the Cincinnati Engineering Tool Co., 4659 Spring Grove avenue, Cincinnati. Charles C. Gordon has been appointed direct sales agent in Wisconsin for the same company, with headquarters at 120 Wisconsin street.

Construction and Enterprise

Concise and Timely Business Building Opportunities
from the Field of Industry

SAN RAFAEL, CALIF.—Pacific Gas & Electric Co., 245 Market street, San Francisco, will build a machine shop and shop for repair of electric and gas meters at Court and Second streets.

BRISTOL, CONN.—F. A. Day Co., manufacturer of screw machinery, will build a 1-story addition 24 x 74 feet. Contract to H. Wales Lines Co., Meriden, Conn.

SOUTH NORWALK, CONN.—Cole-Roscoe Mfg. Co., manufacturer of wire cloth and other wire products, has given general contract for a 2-story addition 25 x 30 feet to F. H. Keyser Co., Keeler avenue.

SOUTH NORWALK, CONN.—Nash Engineering Co., manufacturer of compressors and pumps, will build a 1-story addition 50 x 70 feet. Contract to Stefco Steel Co., 1270 Broadway, New York.

WILMINGTON, DEL.—Thornton Motor Co., 903 King street, Wilmington, has bought 20 acres at New Castle, Del., on which it will build a plant for producing automobile of special type.

ORLANDO, FLA.—Galion Iron Works & Mfg. Co., 100 West Amelia avenue, has been organized with D. B. Findley vice president and manager, and has let contract to Howard G. Lindsay, 318 Long street, for a warehouse.

BURNSIDE, ILL.—Illinois Central railroad, A. F. Blaess, chief engineer, 135 East Eleventh place, Chicago, will build an inspection shop 90 x 440 feet and a repair shop 75 x 440 feet.

CANTON, ILL.—International Harvester Co., Cyrus H. McCormick president, 606 South Michigan avenue, Chicago, has let contract to the Austin Co., 160 North LaSalle street, Chicago, for a 1-story addition 39 x 160 feet.

CHICAGO—Hanson Machine Co., 1901 Wilson avenue, will build a 2-story machine shop 75 x 84 feet.

CHICAGO—Universal Test Equipment Co., 2930 North Oakley avenue, has been incorporated with $12,000 capital to manufacture electrical devices by Fred R. Weiss, Charles B. McKinney and Gustave A. Schleh.

WOODSTOCK, ILL.—Woodstock Metal Products Co. has been incorporated to manufacture tools, dies and fixtures by J. M. Marsolius president, Mac Marsolius vice president and Charles E. Low secretary.

GARY, IND.—Walter Bates Steel Co., recently incorporated has let contract to the General Construction Co., 477 Broadway, Gary, for the first unit of its plant.

KOKOMO, IND.—Continental Steel & Wire Co. has been incorporated to manufacture steel products by J. E. Frederick, George W. Charles and A. A. Charles.

WABASH, IND.—Honeywell Mfg. Co., manufacturer of valves and specialties, will build an addition 40 x 50 feet. General contract to Floyd Webb, Wabash.

OSKALOOSA, IOWA—Turner Mfg. Co., L. M. Turner, president, Cedarburg, Wis., is planning a manlufacturing plant here.

SIOUX CITY, IOWA—Carlson Machine Works, 413 Wall street, is taking bids on a 2-story machine shop 50 x 100 feet.

NEW ORLEANS—American Sheet Metal Works, 1300 South Carrollton street, has bought a site and will build a plant, for which plans are being made.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

MAYSVILLE, KY.—Ohio Valley Pulley Works Inc., manufacturer of wood pulleys, will build an addition to its plant 60 x 300 feet.

AUBURN, ME.—Electrical Appliances Inc. has been incorporated to manufacture electrical devices and tools by Merton A. Reynolds, Auburn, president; Alphonse Lachance, Lewiston, Me., treasurer; Robert O. Reynolds, 17 Highland avenue, Auburn, clerk.

BANGOR, ME.—American Gear Co. of Maine has been incorporated with $50,000 capital to manufacture automobile parts and accessories by Edward R. Byer, Jackson, Mich., president; Edward J. Conquest, Orrington, Me., treasurer; James D. Maxwell, Bangor, clerk.

LEWISTON, ME.—Textile Machine Co. has been incorporated with 1000 shares no par value to manufacture machinery by William H. Spencer, Lewiston, Me., president; William H. Putnam, Lewiston, treasurer; Charles M. Stone, Lewiston, clerk.

BALTIMORE—W. Hutcheson, 212 North Holliday street, manufacturer of automatic screw machine products, dies and punches, will build a 1-story plant 50 x 150 feet.

BALTIMORE—Reid, Avery Co., Washington and Twenty-first streets, Philadelphia, is planning a plant at Chesapeake and Cleveland avenues, Saint Helena, a suburb, for the manufacture of welding wire.

BOSTON—Daklor Products Corp. has been incorporated to deal in and export ores, metals and minerals with 1000 shares no par value by Dudley Clapp, president, Leland G. Darrow, 202 Trapelo road, Belmont, Mass., treasurer, Raymond C. Baldes, clerk.

CAMBRIDGE, MASS.—National Co., 110 Brookline street, machinery and parts manufacturer, will build a 2-story addition 45 x 96 feet.

SPRINGFIELD, MASS.—Springfield Commercial Body Co., 365 Liberty street, manufacturer of truck bodies, has plans for a 1-story plant 90 x 92 feet, with provision for three additional stories.

WINCHESTER, MASS.—Bay State Saw & Tool Co., Main and Lake streets, is making plans to rebuild its burned plant.

BRIGHTON, MICH.—Kilpatrick Machine Co., Detroit, will establish a factory unit here at once.

DETROIT—Detroit Stove Works will build a plant 85 x 100 feet, on which bids are being taken.

DETROIT—Kelso Co. has been incorporated wiht $100,000 capital to manufacture automobile accessories by Earl L. Kelso, 6553 Woodward avenue, D. B. Burton, Detroit, and Harrison M. Kelso Jr., Chicago.

GRAND HAVEN, MICH.—Grand Haven Brass Foundry Co., 618 Lafayette street, A. E. Jacobson general manger, is having plans made for a 2-story addition.

HILLSDALE, MICH.—Richards Tool Co., Detroit, has bought 14 acres on which it will build a plant and move its business here.

IRON RIVER, MICH.—Davidson Mines Co., Theodore Knutzen, sales manager, will be in the market soon for additional equipment.

ST. JOSEPH, MO.—King Mfg. Co., 230 South Clark street, Chicago, has let a contract for a foundry 140 x 480 feet and office building 24 x 40 feet, at St. Joseph.

ST. LOUIS—Southern Wheel Co., Commonwealth building, Pittsburgh, has let contract to Cornet-Casey Co., Chemical building, for a foundry building 230 x 420 feet.

ST. LOUIS—Jack Edwards Inc. has been incorporated with $50,000 capital to manufacture lamps by P. H. Chapman, 3518 Dodier street, and associates.

ST. LOUIS—Century Electric Co., E. S. Pillsbury president, 1805 Pine street, is having plans drawn for a foundry two stories, 240 x 400 feet.

ST. LOUIS—Carter Carburetor Co., 2838 North Spring street, has let contract to W. Shasserre, 5617 Theodosia street, for a 2-story plant 35 x 50 feet.

BOONTON, N. J.—National Rotary Oil Burner Co. has been incorporated with 100 shares no par value by Austin E. Kilkenny and Melvin Robbins, New York, and John A. Lyon, East Orange.

BRADLEY BEACH, N. J.—Vaughn Ignition Protector Co., B. L. Cahn president, Rudolph Anderson secretary, recently incorporated, plans erection of a plant to manufacture an ignition protective device patents for which it has bought.

CAMDEN, N. J.—Harry W. Wyse has been incorporated with $125,000 capital to deal in metals by Harry W. Wyse, Sadie E. Wyse and Dewey W. Wyse, Audubon. Clifford A. Baldwin, Camden, is attorney.

HARRISON, N. J.—General Electric Co., 20 Washington place, Newark, has let contract to Salmond Scrimshaw & Co., 526 Elm street, Arlington, N. J., for a 3-story addition 68 x 68 x 82 feet.

JERSEY CITY, N. J.—Peter Kozans has had plans made by G. A. Flagg, 665 Newark avenue, for a 1-story machine shop at 157 St. Paul avenue.

JERSEY CITY, N. J.—C. Mundt & Sons, 53 Fairmount avenue, manufacturer of perforated metals, has had plans made for a 1-story machine shop 85 x 130 feet at 512 Johnston avenue.

NEWARK, N. J.—Newark Compressed Steel Corp. has been incorporated with 1000 shares no par value by Dorothy Bradford, Jay F. Dailey and Marjorie B. Hall. Mortimer Eisner, Newark, is attorney.

PATERSON, N. J.—Oil Heating Corp. of New Jersey has been incorporated with $125,000 capital by Edward J. Wohlfarth, Almin Wohlfarth, Teaneck, and Albert N. Petterson, Weehawken. Morris F. Levin, Paterson, is attorney.

AMSTERDAM, N. Y.—Amsterdam Cutlery Co. has been incorporated with $10,000 capital to manufacture shears by C. H. Wilkes, G. E.

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	11.00 to 12.00
North African low phosphorus	9.50 to 10.50
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.50 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.50
North African foundry and basic 50 to 54 per cent	9.25 to 9.75

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent.....nominal
Indian minimum 47 per cent.....nominal
Caucasian, 53 to 55 per cent.....
Washed .....40 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$17.50 to 18.00
Washed gravel, imported duty paid eastern tidewater, per net tons	16.75 to 17.25

Calhoun and J. H. Mitchell. J. W. Ferguson, Amsterdam, is attorney.

BATAVIA, N. Y.—Lidoen Mfg. Corp. has been incorporated with $5000 capital and 400 shares no par value to manufacture sheet metal devices by C. H. Lighthart, A. Doughty and E. Eschwechter. Sutherland & Dwyer, Rochester, are attorneys.

BROOKLYN, N. Y.—Wendon Structural Iron Works has been incorporated with $20,000 capital by P. Elberg, R. Elberg and M. Malkoff. Albert & Siskind, 578 East 161st street, is attorney.

COLD SPRING, N. Y.—Double E Mfg. Corp. has been incorporated with $20,000 capital to manufacture copper devices by E. V. Grater and E. H. Pugh. A. D. Pond, Cold Spring, is attorney.

LARCHMONT, N. Y.—Vacuum Gear Shift Corp. has been incorporated with 5000 shares common stock no par value to manufacture automobile accessories by T. B. Sutton and A. C. Robinson Jr. G. L. Sexton, Larchmont, is attorney.

LONG ISLAND CITY, N. Y.—Joseph Heinrichs Corp., 948 Broadway, New York, manufacturer of metal products, is taking bids on a 3-story plant 100 x 105 feet at this place.

MASSENA, N. Y.—Aluminum Co., of America, A. M. Nutt, construction superintendent, is considering plans for a wire mill, 1-story, 150 x 312 feet.

NEW YORK—Kingsbridge Iron Works, Fowler avenue, will rebuild burned portion of its plant.

NEW YORK—Phelan Brass & Machine Co. has been incorporated with $10,000 capital by J. H. Curtiss, B. Robb and H. J. Exler. S. Ladden, 233 Broadway, is attorney.

NEW YORK—Mazol Bronze Co. has been incorporated with $15,000 capital by J. Glasner, F. Glasner and G. Martini. W. M. Ziff, 1440 Broadway.

NEW YORK —New York Air Valve Corp. has been incorporated with $10,000 capital by D. L. Sherman and R. Weiner. L. A. Jackson, 1440 Broadway, is attorney.

NEW YORK—Die Tool & Stamping Co. has been incorporated with $5000 capital by H. J. Schaffer, S. H. Schaffer and M. Tielke. H. E. Shirk, 44 Court street, is attorney.

NEW YORK—United Household Appliance Co. has been incorporated with $20,000 capital by R. L. Alexander, and J. Frankel. J. T. Goldberg, 1819 Broadway, is attorney.

NEW YORK—F. A. D. Andrea Inc., 1581 Jerome avenue, radio equipment, has let contract to White Construction Co., 95 Madison avenue, for 4-story plant 158 x 225 feet.

NEW YORK—Silverloid Button Works has been incorporated with $5000 capital by J. M. Artinow, and M. Greenfield. D. Adelman, 261 Broadway, is attorney.

NEW YORK—Berson Body Building Co. has been incorporated with $10,000 capital by E. Goodman and M. Huberfield. I. Isaacs, 170 Broadway, is attorney.

NEW YORK—Durablade Cutlery Corp. has been incorporated with $10,000 capital by G. Klemperer, J. G. Mayers and B. Kutiz. Greenbaum & Levy, Woolworth building, are attorneys.

NEW YORK—Electrodyne Co. has been incorporated with $5000 capital to manufacture machinery by E. Szarnyasi, G. Szarnyasi and H. Gombos. M. M. Kotz, 16 Liberty street, is attorney.

NEW YORK—P. W. P. Metal Products Corp. has been incorporated to manufacture machinery, with $20,000 capital, by F. W. White, N. Popovitch and J. S. Popper. R. M. Arkusch, 7 Wall street, is attorney.

NEW YORK—McDermott Water Heaters has been incorporated with 200 shares common stock no par value by C. C. McDermott, C. V. S. Mitchell and D. S. Critz. Choate, Larocque & Mitchell, 40 Wall street, are attorneys.

NEW YORK—Frank W. Skinner has been incorporated with $5000 capital to handle steel products by F. W. Skinner and J. Deroos. M. J. Deroos, 1226 Broadway, is attorney.

NEW YORK—Genuine Petrometer Corp. has been incorporated with 2500 shares no par value to manufacture indicators by G. A. Lawrence, L. R. Corwin and J. P. Vanovermeer.

NEW YORK—Clear Metal Casting Co. has been incorporated with 50 shares common stock no par value by L. Rosenstock, S. David and L. N. Sheinart. A. Goodman, 1475 Broadway, is attorney.

NEW YORK—Builders Iron Works has been incorporated with $10,000 capital by N. Rauch, H. Schiffrin and S. Kupperman. A. M. Bakerman, 403 East 138th St., is attorney.

NEW YORK—O. Z. Cable Support Co. has been incorporated with $30,000 capital by F. Sinisgali, J. Siskin and M. M. Wardell. D. Rosenow, 120 West Forty-second street, is attorney.

NEW YORK—Nuncie Auto Coach Works Co. has been incorporated with $5000 capital by J. Nuncie, I. Gordon and J. I. Klepper. Gordon, Tally & Gordon, 347 Fifth avenue, are attorneys.

NEW YORK—Federal Grange Corp. has been incorporated with 100 shares common stock no par value to manufacture machinery by P. Boston, H. C. Fischback and A. F. Geffers. J. H. San, 130 West Forty-second street, is attorney.

NEW YORK—Degenhardt Steel Products Corp. has been incorporated with $20,000 capital and 1000 shares no par value to manufacture building supplies by L. S. Ketcham, G. M. Ketcham Jr. and P. Mooney. H. C. Smyth Jr., 70 Broad street, New York, is attorney.

NORTH HEMPSTEAD, N. Y.—Port Washington Marine Service & Machinery Corp. has been incorporated with $10,000 capital by G. J. Badgley and W. F. Carling. G. H. D. Foster, 47 Cedar street, is attorney.

OSWEGO, N. Y.—Otis-Sawyer Foundry & Machine Co., East Ninth street, has bought site for 1-story foundry and machine shop and will build soon.

ROCHESTER, N. Y.—Todd Co., manufacturers of check protectors, has given contract to H. K. Ferguson Co., Cleveland, for second addition 50 x 100 feet to its plant.

ROCHESTER, N. Y.—Service Range & Heater Corp. has been incorporated with $230,000 capital by G. E. Barker, J. J. Culligan and M. C. Cole. J. F. Morse, Rochester, is attorney.

SCHENECTADY, N. Y.—L. J. K. Mfg. Co. has been incorporated with $100,000 capital to manufacture gas fixtures by A. J. Letarte, E. R. Kramer and E. R. Hassenteufel. Blodgett & Smith, Schenectady, are attorneys.

UTICA, N. Y.—Utica Body Works has been incorporated with 90 shares no par value to manufacture automobile bodies by A. Ruder, W. A. Truax and C. H. Truax. Brown & Guile, Utica, are attorneys.

CANTON, O.—Everhard Mfg. Co., 317 Schroyer avenue, S. W., metal specialties, will build a 1-story addition to its plant.

CANTON, O.—Canton Safety Equipment Co. has been incorporated with $10,000 capital by Wendell Herbruck, F. B. Melchoir and M. Safranek.

CINCINNATI—Cincinnati Mfg. Co., 1900 Gest street, architectural bronze and iron, will build a 5-story addition 60 x 75 feet.

CINCINNATI, O.—Ability Welding & Machinery Co. has been incorporated with $15,000 capital by Lawrence E. Sherman, Paul A. Sherman, Lawrence S. Mayer and George J. Helfrich.

DAYTON, O.—Unit-Steel Corp., 702 Mutual Home building, Joseph Herzstam president, has leased a building in the former Barney & Smith Car Co. plant and will equip it

for production of structural steel.

DAYTON, O.—Kuhns Bros. Inc., Eaton avenue, has given contract to Shook & Billiter, Schwind building, for 1-story foundry addition 70 x 200 feet for manufacture of pipe fittings and similar products.

DAYTON, O.—Israel Bros. Co., Herman Israel president, 112 South Detroit street, has let a general contract to Ostendorf, Harris Co., 117 McDonough street, for a factory building and power plant, one story, 70 x 150 and 14 x 35 feet.

LIMA, O.—Superior Motor Coach Body Co., H. L. Breckenridge president, East Kibby street, is considering an addition to its plant.

NEW PHILADELPHIA—O. Ladel Truck & Foundry Co. has been incorporated with $100,000 capital by N. W. Judkins, R. W. Emerson, John Mauer, A. L. Schwab and R. W. Rutledge.

BARTLESVILLE, OKLA.—Southwest Supply Co., dealer in oil field equipment, has increased capital from $100,000 to $200,000 to provide for business expansion.

BARTLESVILLE, OKLA.—Empire Gas & Fuel Co., has purchased oil producing properties of J. F. Lucey in Vernon field, Wilbarger county, Texas, for $1,000,000 and plans considerable development work in drilling additional wells and testing deeper sands. If gas tests now being made show good gasoline content, a gasoline plant will be erected. M. R. Shaffer, Empire building, is general superintendent.

CHICKASHA, OKLA.—Southern Burner Co., capital $25,000, incorporated by A. S. Gray, W. A. Hophins and B. E. White to manufacture oil and gas burners.

TECUMSEH, OKLA.—Wilson Pipe Co. is building a plant for the manufacture of reinforced concrete culvert and sewer pipe.

TULSA, OKLA.—Oklahoma Steel Castings Co., Ernest H. Cornelius president, has plans for a new plant at Houston, Tex., including foundry, pattern shop and pattern storage.

TULSA, OKLA.—Graver Corp., has secured contract for one 1000-barrel unit cracking still for Kanotex Refining Co., at Arkansas City, Kan.

TULSA, OKLA.—Iverson Co., capital $50,000, incorporated by Paul D. Iverson, 2519 South Cincinnati street, J. M. Iverson and S. J. Iverson, to manufacture oil well drilling tools.

TULSA, OKLA.—Public Service Co., plans construction of 2-story stone building, 50 x 207 feet, for offices and shops, at First and Cheyenne street. Willis Cihak, World building, is purchasing agent.

CATASAUQUA, PA.—Fuller Co. has been organized by James W. Fuller Jr., formerly with Fuller-Lehigh Co., manufacturer of pumping machinery, recently bought by Babcock & Wilcox Co., New York, and will manufacture conveying systems. Plant of three stories on Bridge street has been leased for offices and plant.

LANCASTER, PA.—Metal Craft Corp. has been organized by J. A. Sheffer and others to build a plant at Columbia, Pa., and continue the business of a former company of the same name recently bought at receiver's sale. H. L. McClure is secretary.

MEADVILLE, PA.—Hookless Fastener Co., Cherry and Cottage streets, Lewis Walker president, manufacturer of metal specialties, is taking bids on its new plant. Wilbur Watson & Associates, Cleveland, are architects and engineers. (Noted April 15)

PHILADELPHIA—O. W. Hoffman, 1531 North Stillman street, will build a 1-story machine shop 108 x 120 feet on Third street.

PHILADELPHIA—Philadelphia Storage Battery Co., C and Ontario streets, is building a 3-story addition 54 x 250 feet.

PHILADELPHIA — General Electric Co., Witherspoon building, is having plans made for three 7-story buildings 106 x 600 feet, 74 x 100 feet and 74 x 103 feet.

PROVIDENCE, R. I.—City Hall Hardware Co. has plans for a 4-story plant at Snow and Washington streets.

MEMPHIS, TENN.—C. C. Collins Co., 250 Poplar street, manufacturer of hoisting machinery and devices, is considering plans for a 1-story foundry and machine shop.

MEMPHIS, TENN.—Joseph G. Hall Mfg. Co., 149 Mallory street, will build a 1-story plant 80 x 100 feet for the manufacture of millwork specialties.

HOUSTON, TEX.—Houston Blow Pipe Co., 2010 Congress avenue, F. W. Myers president, is considering plans for a 1-story plant.

HOUSTON, TEX.—Gulf Concrete Pipe Co., has increased capital from $20,000 to $80,000 to provide for plant improvements and business expansion.

WICHITA FALLS—Tex-Home Pipe Line Co., capital $1,000,000, chartered by E. H. Eddleman, Walter N. Alexander and E. O. Sturm to operate oil and gas pipe lines.

BELLINGHAM, WASH.—San Juan Pump Mfg. Co., Ossian Anderson president, will start at once on its new plant which will include 10 buildings on a site of 3½ acres.

ANTIGO, WIS.—Bids close April 21 in the office of G. G. Palmiter, city clerk, for the erection and equipment of a complete municipal sewage disposal plant and system according to plans by the Jerry Donohue Engineering Co., Sheboygan, Wis.

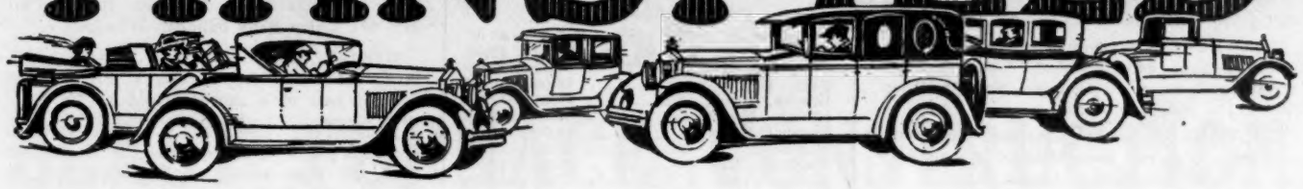
BLACK RIVER FALLS, WIS.—A. R. Jones, clerk of the board of education, is calling for bids until April 27 for the construction of the first unit of a new senior high school to cost about $250,000. Plans are by Architect Edward Tough, Madison, Wis.

LAKE GENEVA, WIS.—Lake Shore Garage, R. C. Diehl, manager and owner, is completing plans for the erection of a new garage and repairshop, 90 x 100 feet, part 2-story, to cost $30,000. The site is being cleared.

Machinery Exports for February Listed by Destination

Countries	Drilling Machines: Vertical number	Drilling Machines: Radial number	Drilling Machines: Sensitive number	Drilling Machines: Other number	Lathes: Engine number	Lathes: Turret number	Lathes: Other number	Knee and column type milling machines number	Other milling machines number	Gear cutting machines other than disk type number	Vertical boring mills and chucking machines number	Thread cutting and automatic screw machines number	Chucks for machine tools number	Rolling mill machinery pounds	Foundry and molding equipment pounds	Other power driven metal-working machinery and parts pounds
France	2	..	..	..	2	2	1	..	6	..	..	..	1,066	....	1,350	4,590
Belgium	..	..	..	..	..	..	..	..	..	..	..	..	13	1,856	....	3,476
Germany	..	..	..	1	2	2	2	..	3	2	..	1	1	....	....	5,442
Soviet Russia	..	..	..	5	..	..	9	..	..	..	..	2	30	....	....	117
Spain	..	3	..	1	1	..	..	..	..	..	..	..	10	....	1,951	21,641
Sweden	..	2	..	1	..	1	1	..	..	..	..	5	49	....	....	26,977
United Kingdom	12	..	..	1	1	..	13	2	20	8	..	11	503	14,053	....	85,959
Canada	10	..	5	6	7	4	8	1	4	..	6	6	182	158,076	202,970	225,880
Guatemala	..	..	2	..	..	..	..	..	..	..	1	..	..	....	....	119
Mexico	1	..	3	1	1	..	1	..	..	..	..	..	27	20,875	143	30,332
Cuba	..	..	9	..	1	..	1	..	..	..	..	..	3	....	....	2,057
Colombia	..	..	1	1	..	..	..	..	..	..	..	1	3	....	....	913
Venezuela	..	..	..	14	..	..	1	..	..	..	..	1	..	....	180	694
British India	..	..	5	..	..	..	..	..	..	..	..	2	129	340	....	817
British Malaya	..	..	..	2	..	..	..	..	..	..	..	..	..	....	....	....
Japan, and Chosen	5	..	..	31	..	2	..	..	..	1	1	..	36	....	3,964	8,100
Philippine Islands	..	..	..	2	1	..	..	..	..	..	..	..	11	....	3,277	706
Australia	..	..	40	..	..	..	..	..	1	..	..	3	429	....	2,522	9,131
British South Africa	..	..	..	8	1	3	..	..	..	..	..	4	20	....	1,049	7,227
Czechoslovakia	..	..	..	..	1	1	..	..	..	..	..	..	..	....	....	....
Poland	..	..	..	..	..	..	1	..	..	4	..	..	..	....	....	1,640
Brazil	..	..	..	..	..	..	10	..	..	..	..	..	26	....	....	58,146
Chile	..	..	..	..	..	..	1	..	..	1	..	2	..	....	492	2,794
Peru	..	..	..	..	..	..	1	..	..	..	..	..	12	....	....	11,593
Java and Madura	..	..	..	..	..	1	..	..	..	..	..	..	..	....	....	16
British Oceania	..	..	..	..	..	1	..	..	..	..	..	1	..	....	....	295
Argentina	..	..	..	..	..	..	..	3	..	1	..	2	..	....	59	3,480
Dutch Guiana	..	..	..	..	..	..	..	..	1	..	..	..	4	....	....	....
New Zealand	..	..	..	..	..	..	..	..	1	..	..	..	30	....	13,077	1,058
Others	..	..	..	..	..	..	..	..	..	..	..	..	16	....	11,495	51,056
Ecuador	..	..	..	..	..	..	..	..	..	..	..	..	..	2,465	....	....
Totals	30	5	65	74	18	17	50	6	36	17	8	41	2,600	197,665	242,529	564,247

MANSFIELD



Automobile Sheets

Many of the largest and best known Automobile Manufacturers come to Mansfield for steel sheets. Cars in every price class benefit from the use of this scientifically manufactured material. Its rare excellence permits manufacturers to produce remarkably smooth finishes.

MASTER TEC BRAND

Mansfield Automobile Sheets are rolled from Mansfield-poured ingots. Our distinctive method of pouring combined with scientific treatment of the metal in the open-hearth furnace accounts for their exceptional purity.

Mansfield Automobile Sheets are available to manufacturers in all grades of Body Stock, Flat Fender and Hood Stock, Radiator Casing Stock, Crown Fender Stock.

OTHER MANSFIELD SPECIALTIES: "Wabik Metal" Sheets for Vitreous Enameling, Metal Furniture Sheets, Milk Can Stock, Electrical Sheets, Pickled and Annealed Enameling Stock for Kitchen Utensils. *Sheet Bars* and *Ingots*.

Mansfield Sheet & Tin Plate Company

Mansfield, Ohio

District Sales Offices:
12-237 General Motors Bldg., Detroit, Mich.
1372 Wrigley Bldg., Chicago, Ill.
410 Pierce Bldg., St. Louis, Mo.
1106 National City Bldg., New York, N. Y.
2002 Union Trust Bldg., Cleveland, Ohio
1504 West Venango Street, Philadelphia, Pa.

Contributing Member
SHEET STEEL
TRADE EXTENSION COMMITTEE

District Sales Offices:
1403 Merchants Bank Bldg., Indianapolis, Ind.
1020 Union Trust Bldg., Cincinnati, Ohio
640 Endicott Bldg., St. Paul, Minn.
237 Rialto Bldg., San Francisco, Calif.
509 Wilcox Bldg., Los Angeles, Calif.
1426 L. C. Smith Bldg., Seattle, Wash.

MADISON, WIS.—W. D. Price, superintendent of construction, International Harvester Co., 606 South Michigan avenue, Chicago, will take bids after April 22 for the erection of a new motor truck service building, 120 x 130 feet, 1-story, at Madison, Wis.

MILWAUKEE—Seaman Body Co., W. J. Iwer, general superintendent, 1732 Richards street, will start at once on third addition 100 x 170 feet, five stories.

MILWAUKEE—Robert Kirchhan, 823 Forty-seventh street, has been awarded the general contract for erecting a 1-story addition, 30 x 100 ft., for the Milwaukee Brass Specialty Co., at 1329 Thirtieth street.

MILWAUKEE—Architects Gurda & Gurda, 480 Mitchell street, have plans for a manufacturing building, 50 x 75 feet, to be erected at Twenty-second and Clybourn streets, for an unidentified owner.

MILWAUKEE—Henry Danischefsky, 1484 Humboldt avenue, Milwaukee, is the successful bidder for erecting a new shop addition, 40 x 130 feet, 1 and 2-story, for the Stolper Steel Products Co., automobile stampings, at 3300 Fond du Lac avenue.

MILWAUKEE—Chicago, Milwaukee & St. Paul railroad has let contract to Burrell Engineering & Construction Co., Chicago, for an elevator and workhouse to replace one recently burned. Contract includes machinery, motors and conveying equipment. E. A. Lalk is general agent at Milwaukee.

MILWAUKEE—Theo. Stark & Co., 130 Muskego avenue, have taken the general contract for erecting a firepoof garage and repairshop, 70 x 163 feet, 1-story, at 101 Juneau avenue, near Milwaukee street, for the Val. Blatz Co., 650 Broadway. The architect is Henry G. Lotter.

MILWAUKEE—Architects Leenhouts & Guthrie, 424 Jefferson street, have let the general contract for the erection of a $175,000 cold storage and general warehouse, 116 x 175 feet, five stories high, at South Water and Park streets, to W. W. Oeflein, Inc., 86 Michigan street. The building will be occupied by the newly organized Milwaukee Warehouse Co.

SPARTA, WIS.—Contracts for the construction of a new garage and repair shop, 40 x 120 feet, for Brookman Bros. at Wisconsin and L streets, will be let at once and work rushed to completion by June 1.

SPARTA, WIS.—The state of Wisconsin will add an upper grade vocational school costing $85,000 and an older boys' cottage costing $30,000 at the State School for Dependent Children. Plans are being completed by State Architect Arthur Peabody, Madison, Wis.

WAUKESHA, WIS.—Quality Aluminum Casting Co., 100 Lincoln avenue, will build a plant addition 80 x 280 feet, for which cranes and equipment will be required.

CASPER WYO.—Kensma company has acquired site, 40 x 200 feet, at Evansville and plans plant for manufacture of automobile accessories.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 45.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	43.00 to 46.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	45.00

Business in Canada

VANCOUVER, B. C.—C. J. McAllister, 1145 Seymour street, will build addition to spring shop here, and has let general contract to Bedford Davidson, 1012 Broughton street.

ST. BONIFACE, MAN.—The Weiner-Brownell Paper Mills, Ltd., Winnipeg, Man., has started work on mills here. Engineer, B. W. Parker, 624 Union Bank building, Winnipeg.

WELDON, N. B.—The New Brunswick Oilfields, Ltd., Moncton, N. B., is planning oil refinery here at a cost estimated at $50,000.

HAMILTON, ONT.—It is announced that contracts have been awarded in connection with 35 coke ovens at the plant of the Hamilton By-Products Co. here, estimated to cost $1,500,000.

MICHIPICOTEN, ONT.—Construction work will be started immediately on a power line in connection with power development here by a private syndicate. T. J. Cassidy, Windsor hotel, Sault Ste. Marie, Ont., is purchasing agent.

TORONTO, ONT.—The Canadian National railways, room 220, New Union station, Toronto, is receiving bids for car and engine shops here.

TORONTO, ONT.—Representatives of the Princess Motor & Battery Co., manufacturers of automobile batteries, etc., propose to erect a new plant and are looking for a site in some town in Ontario.

MONTREAL, QUE.—Contracts have been awarded in connection with addition to the plant of the Steel Co. of Canada, Ltd., here.

MONTREAL, QUE.—The Northern Electric Co., Ltd., 121 Shearer street, has awarded additional contracts in connection with plant addition here.

ST. LAURENT, QUE.—The Consolidated Pipe Co., Ltd., Canada Cement building, is having plans prepared for a manufacturing plant here. R. W. Mitchell is engineer.

THREE RIVERS, QUE.—The E. G. M. Cape Co., 10 Cathcart street, Montreal, has the general contract for $1,000,000 paper mill here for the St. Lawrence Paper Mills, Ltd., 772 Notre Dame street.

SASKATOON, SASK.—The John East Iron Works, Avenue C., proposes to build addition to foundry here.

New Trade Publications

CENTRIFUGAL CAST PIPE—A booklet by the American Cast Iron Pipe Co., Birmingham, Ala., is devoted to the specifications of that company for its centrifugally cast pipe, with tables of weight and metal thickness and detail diagrams.

HAND TRUCKS—The Colson-Cleveland Co., Cleveland, has issued a pocket catalog of its institutional, commercial and industrial trucks, indicating a wide range of uses to which they are put, with illustrations of dozens of types.

MACHINE TOOLS—Announcement by the Seifreat-Elstad Machinery Co., Dayton, O., is being sent out covering its exhibition of machine tools at its plant, May 3 to May 15. The machines that will be on display are shown in illustrations with description of their application and operation.

CONTROLLERS — Clark Controller Co., Cleveland, has issued four bulletins, covering manual controllers, screw jack dead ending clamps, brakes and flexible couplings. They are fully illustrated with halftones and diagrams and engineering data are presented in connection. The several devices are described in detail and their advantages cited.

CENTRIFUGAL PUMPS—Double suction pumps of this type are described and fully illustrated by sectional views, drawings and halftones, giving details of construction, in a bulletin by the Dean Hill Pump Co., Anderson, Ind. A table of dimensions is a guide to engineers in determining the size for various classes of service.

CENTRIFUGAL PUMPS—Multi-stage Centrifugal pumps manufactured by the Pennsylvania Pump & Compressor Co., Easton, Pa., are described fully in a bulletin just issued by that company. The equipment is illustrated and typical installations are shown. The text describes its advantages for various uses. Several other products of this company also are given space.

OIL CIRCUIT BREAKERS—A special publication by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., deals with the application of oil circuit breakers. It goes into the general application of this type of equipment, the determination of short-circuit current precautions necessary, with a number of pages of tables and charts. The information is exhaustive and of high value to the electrical engineer.

NEEDLES—A charmingly written booklet by The Torrington Co., Torrington, Conn., tells the story of the invention and perfection of the sewing-machine needle in that town by Charles Alvord. There Yankee ingenuity solved the problem that faced the builder of sewing machines and stood in the way of its success. From the little beginning in the Connecticut hills the reader is led to the development of the extensive business of the company of the present day.

WRENCHES—A moving force and a high necessity in mechanics the wrench is given much prominence in the current catalog of the Billings & Spencer Co., Hartford, Conn., which has been issued recently. An important feature of the catalog is a list of trade numbers in addition to the manufacturer's numbers and an index table to obtain the dimensions of wrench openings to fit standard nut and bolt sizes. A number of new products of this firm are listed.

TEN YEARS
of
BLAST FURNACE CONSTRUCTION

Capacity in new blast furnace plants built 1916-1926....2,730,000 tons
Value.....$43,700,000.00

* * *

Capacity in remodeled blast furnace plants 1916-1926....1,820,000 tons
Value.....$15,500,000.00

* * *

These Blast Furnace Plants Hold Records

for

Shortest time of construction.

Maximum tonnage output.

* * *

FREYN-DESIGN blast furnace plants have been abreast of progress. Furnaces built six and eight years ago are today among the leaders in tonnage output. Plants now under construction embody proven features of former designs and advances to secure increased tonnage with lower production cost.

A FREYN-DESIGN blast furnace plant, new or remodeled, is balanced. Stocking, charging, power, wind and heat equipment are properly correlated with furnace capacity. The production of a FREYN-DESIGN plant is larger and the production cost lower than at unbalanced plants. Construction costs are lower per ton of actual output.

* * *

FREYN ENGINEERING COMPANY

Consultants — Engineers — Contractors

310 So. Michigan Avenue

CHICAGO

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount or $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	83	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¾ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including 7/16-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot..... .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 7/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared wiht re-entrant angles)

Additional extra ..... .20c

SIVYER S CASTINGS
DEPENDABLE

The crown-block illustrated is fitted to the top of this gin-pole to hold the guy wires and prevent the pole from splitting.

Gin-pole crown-block cast in Sivyer Electric Steel.

Machining and Grinding Tools Tell the Cost of Extra Smooth Finishes

Many manufacturers are forced to provide castings with an extremely smooth finish. The gin-pole crown-block, shown above, is ground by its user until it has almost the appearance of plated steel. After that it is given several coats of paint. Unless a casting is free from surface sand the cost of such dressing up becomes excessive. Surface sand, even though unnoticed by the eye, plays havoc with machining and grinding tools—and sends them on frequent trips to the tool room. And that is another reason why manufacturers who must have unusually smoothly finished parts turn to Sivyer Electric Steels. With sand-free Sivyer Castings machining and grinding costs are not excessive—and Sivyer Steel provides the sound interior strength that must be beneath the smoothly finished surface.

The sharply varying sections of such a casting as the one shown are breeders of "shrinks" — and "shrinks" cause failure in service. To our knowledge, not one casting — of the type shown on this page — has ever failed in service.

If you're troubled with high machining costs—or if you demand better service from your castings in the field, we will make recommendations without obligating you in any way. Just *Send Blue Prints of the Job.*

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertiser and by referring to advertisement you can get full particulars about products.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Pennsylvania Engineering Works, New Castle, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th & Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Browne, deCourcy, Inc., 8 West 40th St., New York City.
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Leavitt, C. W., & Co., 30 Church St., New York City.
Rogers, Brown & Crocker Bros., Inc., 21 E. 40th St., New York City.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM TUBING
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Adamson Machine Co., The, Akron, Ohio.
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Malleable Iron Co., 34th & Smallman Sts., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Zanesville Malleable Co., Zanesville, Ohio.

ANTI GLARE PREPARATION
Skybryte Co., The, Keith Bldg., Cleveland, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The 3675 E. 78th St., Cleveland, Ohio.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARS (Acid Resistant)
Alcumite Corp., The, Dayton, O.

BARS (Alloy)
Central Steel Co., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcements)
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Truscon Steel Co., Youngstown, O.

BARS (Iron and Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Milton Mfg. Co., The, Milton, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.
Republic Iron & Steel Co., Youngstown, O.
Truscon Steel Co., Youngstown, O.

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Steel Co., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, Ohio.

BASKETS (Wire)
Meyers, Fred J., Mfg. Co., The, Hamilton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Blystone Mfg. Co., Ironton St., Cambridge Springs, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Phoenix Iron Co., The, 20 So. 15th St., Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Snead Architectural Iron Works, Louisville, Ky.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Hyatt Roller Bearing Co., Newark, N. J.
Keystone Bronze Co., 39th St., Pittsburgh, Pa.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT CEMENT AND DRESSING (Leather)
Williams, I. B., & Sons, Dover, N. H.

BELT LACING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.
Williams, I. B., & Sons, Dover, N. H.

BELTING (Chain)
Link-Belt Co., 910 S. Michigan Ave., Chicago, Ill.

BELTING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.
Williams, I. B., & Sons, Dover, N. H.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., The, Cuyahoga Falls, O.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kane & Roach, Niagara and Shonnard Sts., Syracuse, N. Y.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton-Abramsen Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Co., The, Union Trust Bldg., Pittsburgh, Pa.

BILLETS (Forging)
Bethlehem Steel Co., Bethlehem, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.

BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

BILLETS AND BLOOMS
American Rolling Mill Co., Middletown, O.
American Tube & Stamping Co., The, Bridgeport, Conn.
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Central Steel Co., The, Massillon, Ohio.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Illinois Steel Co., 208 South La Salle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago, Ill.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

BLANKS (RAWHIDE, GEAR)
Chicago Rawhide Mfg. Co., The, 1305 Elston Ave., Chicago, Ill.

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